THE CULTIVATOR,

A CONSOLIDATION OF BUEL'S CULTIVATOR AND THE GENESEE FARMER.

"AGRICULTURE, AT ONCE THE CAUSE AND EVIDENCE OF CIVILIZATION."

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THE CULTIVATOR.

WILLIS GAYLORD & LUTHER TUCKER, EDITORS.

NOTICES.

We cannot refrain an expression of satisfaction at the general and flattering terms of approbation which the union of the Cultivator and Farmer has called forth from the most able and efficient of the agricultural as well as other journals of the country. We are still more gratified at the prompt and large subscription we have received, indicating an increase, which, considering the peculiar state of the times, is as welcome as unexpected. Our thanks are renewedly due to our numerous correspondents, whose favors we are most happy to receive and publish. We consider all these things as decisive indications of approval, to be repaid by us by increased devotion to, and zeal in the great cause of agriculture.

Some of our friends have expressed a fear that by removing the publication to Albany, it would not give that particular attention to the western district, which characterized the Genesee Farmer. We will prove this fear to be groundless. Our journal belongs to our country, in its largest sense; we have subscribers and contributors from every state and territory in the union; yet we hope to contribute useful information to every section. The quantity of matter each number of the Cultivator contains, will enable us more fully to do justice to all, without neglecting any.

TO CORRESPONDENTS.—Notwithstanding we have filled this sheet, as we did our first number, entirely with original articles, we have still on hand several valuable communications, which will appear in future numbers.

TO AGENTS.—Having been assured by several of our friends, that they could greatly increase our subscription list, were they permitted to receive subscribers without insisting on advance payments, we would give notice that the paper will be sent to all such subscribers as our agents may be willing to become responsible for—the money to be remitted in the course of a few months, or as soon as received from the subscribers. The liberal terms allowed to agents will, we trust, induce many of our readers to interest themselves in enlarging the circulation of the Cultivator.

RECEIPTS.—The publication of the list of receipts for the Cultivator, we have thought best to omit the present year, on account of the space it would occupy, to the exclusion of more important matter. The usual list for the past month, would fill nearly a page. Receipts will be sent to all those who may particularly desire them.

PROPRIETORS OF THE CULTIVATOR.—We neglected to state, as we should have done, in our first number, that the firm of JESSE BUEL & Co. consists of LUTHER TUCKER and JESSE BUEL, who are sole proprietors and publishers of the Cultivator.

Establishment of a Board of Agriculture.

The events of the last few months have convinced those who reflect at all, that the only way in which this people can extricate themselves from the embarrassments in which they find themselves, discharge their immense foreign obligations, and restore that healthful state of feeling so necessary in every transaction of business, is to rely on the productive resources of the country, rather than on those of a mere financial nature. The people of the states have learned that it is far easier to create a debt, than to reduce or pay it—that a transfer of an obligation is not a cancelling of it; and that nothing but labor, productive industry of some kind, can be safely relied upon. They are beginning to feel the importance of giving to this labor the most profitable direction, of ensuring to industry the returns to which it is ever entitled.

The state of New-York has long taken an active and leading part in all the great measures that have conferred so much honor on the country and so signally benefited the community. We need only to refer to our system of internal improvement; our noble foundation for the education of every individual in our state; our system for placing ample means of useful knowledge within the reach of the most remote or most humble of our citizens; and the aid which has at different times been granted to the cause of agriculture.

Of the importance of agriculture to the community every one is aware. It is at "once the cause and the evidence of civilization;" it is the base on which the whole social superstructure rests; when agriculture prospers, all goes well; when that fails, and the earth, no matter from what cause, does not yield her increase, depression, panic, and ruin ensue. That the nation depends for its bread on agriculture is obvious to all; that it is not less dependent upon it for commercial and financial prosperity is equally so to every one, who has attentively considered the signs of the times. On the surplus produce of his fields the farmer relies for the extinguishment of his debts, and the accumulation of wealth; on that same surplus must the nation rely to produce the same effects; and to increase this surplus, to develop and bring out our resources, and of course to create new additional means, is one of the most important objects that can engage the attention of our legislature and the country.

We think that for the accomplishment of these objects, and others more or less connected with them, the establishment of a Board of Agriculture, to be under the control and receive the patronage of the state, to be essentially necessary. That if properly constituted and conducted, it would be of the greatest service to the cause of agriculture there can be no reasonable doubt. Connected with the Board and under its supervision, might and would be soon collected an agricultural museum, embracing models of all the most approved implements; specimens of the various seeds, roots, and vegetables, most important to the farmer; forming altogether one of the most instructive and interesting of exhibitions to the agricultural visitor at the capitol of the state, and combining in one view the various sources from which our substantial property is derived.

Every one acquainted with the history of our country knows that there is scarce a section of it, in which the main articles of its produce, and of course the sources of its prosperity, have not materially changed within the lapse of half a century. New-England formerly exported grain and cattle; now her productive industry is turned into a different channel, and manufactures are the chief source of her strength, and constitute her disposable surplus. The middle states have changed their staples less than either the north or the south. Grain has been, and will probably continue to be, the principal object of attention and culture. It is but comparatively a few years since the great products of the south were rice, indigo, and tobacco. With the exception of the last, these staples have sunk into comparative insignificance, and cotton has not only become the grand product of the south, but the great article of export to other nations. Sugar and silk, at the present moment, appear to be pushing their claims to public notice successfully, and there is every indication that ere long these two articles will be struck from the list of our imports, if not added to those of our exports. That we can grow our own silk and sugar is certain; that we shall do so, present indications render very probable. What others can do, the people of the United States can do; and embracing almost every variety of climate and soil, the same principle that prompted the declaration of independence should now enforce the adoption of the only means by which that independence can be maintained. This state has not escaped the fluctuations and changes in the products of its several sections, that have existed elsewhere. For a time the eastern part of the state almost suspended the growing of grain, and allowed it to be confined to the newer and less worn districts of the west. Under a better system, grain in abundance is now produced, while the counties of the west are beginning, and with reason, to inquire whether there is not on the whole a decline in the productiveness of their lands.

In giving the enterprise and energy of our citizens a proper and successful direction in relation to those topics enumerated above; in introducing from abroad such new varieties of seeds, plants, or trees as promise to be valuable, or are suited to our climate; in testing by experiment the value of different agricultural implements, and their adaptation to the purposes for which they have been introduced, by which an immense sum would be saved to the agricultural public annually; in short, by taking the lead in our efforts to improve the state of agriculture, a Board could render the most essential service.

The rooms devoted to the museum would soon become the resort of all that take an interest in the promotion and success of agriculture. The most valuable works on this oldest of arts would soon accumulate; the choicest specimens of our crops would there find a place; the portraits of animals of the most celebrated breeds might line the walls; and the whole made worthy of the visits of persons of taste, as well as become of permanent utility. The cost of accomplishing all this would be little, only some five thousand dollars annually. Enough to defray the expenses of a secretary, and charges for carrying out the designs of the board. One of the acts of which this state may be proud, is the Geological Survey now going on. That it will many times repay, in developing the hidden resources of this state; in preventing useless expenditures; in diffusing useful knowledge respecting the character and mode of treating our several soils; and in throwing light on all those subjects which render a more complete knowledge of the earth and its constituents desirable, any expense that may be incurred, cannot be reasonably doubted.

Wherever the plan of a public Board of Agriculture has been tried, the effects have been of the happiest kind. So self-evident is this fact, that there are few European countries which have made any considerable progress in agriculture, that are now destitute of them, or which has not some arrangement to a similar effect. Propositions have been, or are, before the legislatures of several of the states designed to organize such bodies; and we can see no good reason why, in a course which promises so much good at so cheap a rate, New-York should be behind her sisters of the confederacy. The times are hard, it is said; but let us improve the times by improving the soil, and by furnishing its cultivators the most efficient means of doing it.

In reply to the question, "In what way would a Board of Agriculture benefit the state?" Judge Buel gave the following satisfactory answer:

"A Board of Agriculture should consist of three or more intelligent men, and a secretary, meet perhaps quarter-yearly, and receive a fair compensation for the time necessarily devoted to the duties of their office. The secretary should devote his whole time, under the direction of the Board, to the interests of agriculture—

1. In collecting, arranging and publishing statistical and other useful information in regard to rural affairs.

2. In collecting and distributing seeds of such kinds of agricultural products, as may promise to profit our husbandry; together with the modes of their culture, management and preparation for market.

3. In receiving, labelling and arranging, models of implements, geological specimens, seeds and samples of rare or excellent products of the soil, portraits of fine animals, donations of books, &c. and in exhibiting them to visitors, and explaining their objects, qualities and promised advantages

4. In answering the inquiries of agricultural men, on all matters relating to any branch of husbandry, or any article of culture.

5. In corresponding with societies and individuals, on matters promotive of the interests of agriculture.

The due performance of the above enumerated duties could not fail to be very serviceable to the state, in promoting the improvement of her agriculture. But there are other duties which might be performed by the board, of unquestionable benefit, should one be instituted, and the legislature think proper to confide such to them, to wit:

6. Examining, testing and deciding upon the merits of all new implements of husbandry, offered for their inspection—and upon which the board might be authorized to award discretionary premiums, where the articles should be judged highly meritorious—and thereby giving them a character upon which the public might rely. And

Last in order, though perhaps first in importance, a Board of Agriculture might write, compile, or procure to be written, and printed, books upon agriculture, the veterinary art, orcharding, gardening, rural embellishment and household economy, suitable for the common school libraries of an agricultural population.

In the several duties above enumerated a Board of Agriculture would do much good. Such a board has been eminently useful in Great Britain. Such virtually, in France, is the Royal Central Society of Agriculture—its premiums, and its laboring members, being paid from the public treasury."

"What should a Farmer be?"

An important query this, and one that deserves to be well pondered. We answer it thus:—

A Farmer should be Industrious.—In no department of life, without industry, can any thing valuable or important be achieved. There is such a thing as an idle farmer, "true it is, and a pity 'tis 'tis true;" but an idle, successful farmer, is something the world has not yet seen. No where is persevering industry more indispensable than on the farm, and no where is well directed labor better rewarded. When we say the farmer should be industrious, we do not mean he should be a slave.—There is, among some farmers, perhaps a majority at the present time, a feverish anxiety to become rich, a disposition to go ahead, which renders rest impossible, and hardly allows time to eat or sleep—such men are subject to a task-master of the most imperious character, and one from which they should make no delay in freeing themselves. The farmer can have, and he who manages his affairs well, will always have, his hours of relaxation—hours to spend with his friends, and hours to devote to the improvement of his mind. The way to ensure this, is always to be beforehand with the labor of the farm, and never allow himself to be crowded.—More work should never be laid out than is compatible with this rule; and the work that is required to be done to-day should never be deferred till to-morrow. The difference in the ease with which labor is performed, when done in the right time, or when we are driven

to it by urgent necessity, is so great, that attention to this point alone, would, in performing a given amount of labor, make a most material addition to the farmer's hours of rest and improvement.

A Farmer should be Economical.—Let the farmer labor as hard as he may; let him deny his soul and body every required good; let him abridge his hours of sleep, and toil from "morn till dewy eve," without rest, or relaxation; it will amount to but little, unless his affairs are in other respects managed with economy. By economy, we do not mean that closeness or littleness—stinginess if you please, which some are pleased to call economy, but which is infallibly connected with meanness, and is one of the most effectual preventives of all improvement, and the surest precursor of utter degradation that can be found in a man, and of all other things, is most out of place in a farmer. The great secret of economy, is knowing what is useful and necessary, and what not; of knowing when to expend and when to withhold expenses; in keeping our out-goes clearly within our income, and never purchasing what we can ourselves produce, or which a corresponding amount of our own labor will not procure; and in having every thing in doors and out in its proper place, nothing wasted or destroyed, but a general supervising care directed to every thing connected with our business at all seasons of the year. It is miserable economy to undertake to labor without the proper tools; to undertake to see how cheaply we can summer or winter our animals; or to see with how little knowledge and intelligence, or the means of obtaining either, we can contrive to plod along through life.

A Farmer should be free from Debt.—If the farmer wishes to bind a millstone round his neck, to sink him beyond the possibility of hope or rescue—to keep him constantly restless, and struggling for subsistence if not for existence, let him keep in debt; if he would be able to call what he has his own, and breathe the air of a freeman, let him religiously eschew debts. We would almost go so far as to say that nothing excepting the purchase of land, can justify a farmer in contracting a debt; and before he sells himself for more land, he will do well to inquire whether he has capital to work it profitably, or whether what he now has, is brought to the proper degree of fertility. We are confident that if men were to pay ready money for a thousand things they fancy they need, and can obtain on credit, they would not be purchased. The habit of contracting debts has a direct tendency to induce needless risks, and bad domestic economy. Two-thirds of the law suits that arise, and which are productive of so much expense and ill will, spring from this single cause. But whatever circumstances else may occur to render debt necessary, indebtedness to banks is what should never happen to a farmer, and he should never be seen within the doors of one of those institutions. They were never intended for the farmer; and, necessary and beneficial as they may be for the purpose of exchanges and trade, the man whose business and transactions are as those of the farmer should be, can never with safety allow his name to be used too familiarly within their walls.

A Farmer should be Intelligent.—It is an old and true maxim, that "ignorance of the law excuseth no man," and ignorance on any topic necessary to a proper prosecution of his business, or to his proper standing and influence in the community, cannot now be plead by the farmer, without indirectly confessing to a great and inexcusable neglect of means within the reach of every one. Knowledge, no less than money, is power; and its accumulation in the hands of any class is a sure proof of eventual ascendancy; and this fact should stimulate farmers to use every exertion to become its possessors. Universal education is the glory of our land; the true foundation of our national greatness, and, in connection with sound morals, is its surest preservative. Schools, books, newspapers, and journals of all kinds, have a wide circulation, and at a rate that places them in the hands of all who choose to think and investigate. Error cannot escape under the guise or plea of antiquity; and the stake and the pillory are not required to combat it in a land where reason is free to expose its absurdities, or plead the cause of truth. By this general diffusion of the means of knowledge no class has been more benefited than the farmer, and none can have a deeper interest in its continued increase; and none should more freely and fully avail themselves of the means the laws have so liberally placed within their reach.

A Farmer should be Moral.—It has been said that "an undevout astronomer is mad," and an immoral, profligate farmer is an equally decisive instance of mental aberration. The owner of the soil; the producer and the possessor of the main part of the country's wealth; its defence in war, and its conservator in peace, the farmer has every reason to uphold a system not only right in itself but productive of prosperity and permanence, and frown down and repudiate every thing that has a contrary tendency. There is no surer index to the general happiness of a people, and stability and excellence of their institutions, than the tone of morals that exists among them. If the standard is high, private right is respected, the law is paramount, and property is safe; if the standard is low, power makes right, force is law, insubordination prevails, persons and property are insecure, the temples of justice become the fountains of bribery and corruption, prosperity passes away, and society resolves into its original elements. There is always in every country a mass of persons, idle and profligate, who herd together in cities, and who, having nothing to lose, are always ready for every innovation, or every disturbance that threatens convulsion and overturn, as in the general scramble they may obtain plunder and power. It was this fact that induced the illustrious Jefferson to pronounce great cities "sores on the body politic;" and the murders, mobs, and riots that prevail in them, are only so many proofs of the great deficiency of moral feeling existing. The observation of every intelligent man in the country has convinced him that if the democratic republican institutions of our country are destined to pass away, it will be in the flood of immorality and profligacy engendered by lawless ignorance; and the patriot and the statesman instinctively turn to the plains, the hills, and the mountains, of our broad and glorious land, as the abode of the principles, and the men, who, under Providence, are our safe-guard and our hope. The farmers have always been found the firmest supporters of order and law, and if they have ever been found arrayed against either, it has been because ignorance fitted them to become tools of the unprincipled and the designing. If ever vice and immorality triumph in our land; if ever our civil and social institutions are subverted; if ever our political liberties are destroyed; the farmers of the country, such men as fought at Bunker Hill and Bennington, Plattsburg and New Orleans, will be found the men to defend them to the last, and die in the last ditch in preventing their overthrow.

The Garden.

There are few things more certainly indicative of good taste and a cultivated mind, in an individual of any class, than a well laid out, and neatly managed ornamental tree and flower garden; and rarely indeed do we find a man who has any claims to the title of a good farmer, who does not also have a good vegetable garden. Such a garden is an appendage to every farm, indispensable, and which will never be overlooked by the man who has any pretensions to economy. A garden is not less necessary for a mechanic, or a professional man, and the few hours that such men have to spare for exercise in the air, cannot be more profitably or pleasantly employed than in the labors the cultivation of such a spot requires. Few are aware who have never paid particular attention to the subject, of the actual profit every farmer receives from the half acre of land devoted to this purpose; or how much the health and comfort of a family is increased, where the fruits and vegetables of the garden are daily enjoyed. That there is much less attention paid to the garden than it should receive is evident to all, and we hope by frequent recurrence to the topic, to aid our agricultural friends, and others, in this pleasing part of rural economy.

The selection of ground for a garden, where the situation admits of choice, is the first thing to be attended to. Almost any ground, with sufficient labor and expense, can be made productive and fertile; but the task of managing land naturally possessing these qualities, is altogether easier than that which is artificially so, and the expense of keeping it in good heart and condition much less. A soil that is what is usually called a rich loam will be found the best for a garden; not too light and porous, but having sufficient tenacity to prevent drouth, and sufficient permeability to prevent any water from standing on or near the surface. If the soil is naturally too heavy or wet, draining deep and fully must be resorted to, for in no place is stagnant water more fatal than in a garden. If the soil is not sufficiently friable and deep to furnish ample room for the roots of plants grown in a garden, it must be deepened by ploughing or spading, incorporating manure with the newly disturbed earth liberally, until the proper depth of soil is reached and secured. If it still is too tenacious, and inclining to settle after rains, as clayey soils are prone to, a covering of sand or fine gravel mixed with the native earth, will be found of essential service in correcting the evil; the quantity applied depending on the extent of the difficulty to be overcome.

The exposure of a garden is of very considerable consequence, and where every thing else is equal, a southern one is to be preferred. Our north, northeast and northwest winds are the most to be dreaded, as not only bringing frosts, but at a later period chilling the young plants, checking vegetation, and thus in many instances retarding the maturity or ripening of fruits and plants. A decided advantage will therefore be found in having gardens protected from these northern influences. Where convenient, the ranges of out buildings may be sometimes advantageously used for this purpose; where they cannot be so constructed or applied, closely planted fruit or forest trees will be found of essential service. Every one is aware how much warmer and earlier the earth is on the sunny side of a grove, in the spring months, than on the reverse, and it is this early warmth which is required, especially in northern latitudes, to bring forward and mature vegetation. Where trees are used for this protecting purpose, a border of evergreens will be the most effectual, and these can in ordinary cases be provided with but little expense. Independent of their value for protective purposes, such a bordering of properly arranged trees constitute quite an ornamental appendage to a farm, and it should be remembered that every tree planted by the farmer is money placed at compound interest.

During our winters much cannot be done to advance the labors of the gardener. But every preparation should be made by providing seeds of all the kinds it is intended to cultivate, having them properly labelled and arranged that there may be no unnecessary want or delay, when the fit time for planting arrives. Frames for melon hills, covered with glass, or with millinet, as intended for forcing the plants, or preserving them from insects, may also be provided; and where manure has to be brought from a distance, the winter will be found the best time for drawing it, and depositing it in piles to be spread when wanted.

Where there is considerable tenacity in the soil of a garden, a coat of manure applied in the fall, and the whole plowed as deeply as possible, will be found to have a good effect, frost being one of the most efficient of pulverizers, and the manure becoming more thoroughly incorporated with the soil than when put on in the spring and planted upon at once, after being plowed under. It is to be remembered that depth, richness, and fineness, are indispensable requisites in a garden soil; and every operation should have a tendency to produce these results.

A part of every garden should be so prepared that advantage may be taken of the earliest spring to put in such seeds as will not be affected by frosts, and which in this way may be grown much earlier than if delayed till the ordinary seasons of planting. Of these plants the most prominent in the farmer's garden are peas and lettuces, which may be planted as early as the state of the earth will admit. Plants, too, which are intended for transplanting, such as the cabbage, and other tolerably hardy kinds, should be sown as early as is consistent with their safety.

With the progress of gardening and agriculture in the country, various improved methods of forwarding plants and hastening their maturity have been adopted with much success. Where the proper fixtures for hot-beds are not at hand, other modes of applying the artificial heat given out by fermenting manures, have been devised with the best results. Holes filled with manure, and the earth slightly raised upon it; mounds of considerable extent and height covered with sods and earth and planted upon or around, have been found serviceable, and are at the command of every farmer. We shall return to this subject in our next, and if possible give an engraving of a cheap and simple hot-bed which every farmer may and should possess.

Water for Animals.

The value of good watering places for cattle, and the other stock on a farm, is well understood by every farmer; and is felt as one of the greatest inconveniences to the cultivator, wherever they are deficient. If the farmer is obliged to have recourse to his pumps and wells for water during the year, his flocks and herds will most assuredly suffer more or less; and the simple fact that all animals will drink at times when water can be had, is sufficient proof that it is necessary for them. They can exist without it perhaps, but that does not prove they would not be more comfortable with it; and if more comfortable, then the amount of flesh, milk, or wool, is increased to the farmer.

Natural springs or brooks, where they exist, make the best watering places; where these are not to be had, artificial fountains may in many, or in most instances, be provided, and make the best substitute for the first to be found; and where these are not to be had, recourse must be had to wells; the most inconvenient of the whole. If possible, water for the use of animals should be in the fields where they lie, or the yards where they are kept. In stormy weather cattle cannot wander far for food or drink without injury; but when it is mild, it is better for animals to go fifty or eighty rods for water, in the winter season, (store animals we of course mean,) than to have it in the stable or yard. The exercise given to the animal in walking is beneficial in promoting muscular energy, keeping the appetite good, and preserving the health generally. We were assured by a farmer the other day, that he had never had a case of foot ail among his cattle, while the most of his neighbors had suffered greatly; and he could attribute the exemption to nothing but the practice he was in of making his cattle, though he had water nearer, go for their drink nearly a hundred rods, unless in the worst storms of winter. The circulation in the extremities was thus kept unimpaired, and the stagnation that seems to exist in hoof ail, and certainly precedes freezing, was prevented.

We are convinced there are but few farms, where natural brooks or springs do not exist, on which artificial watering places may not be made, which shall supersede the necessity of wells and pumps, unless perhaps in some very dry seasons. The practice of under draining, if skilfully performed, and with reference to this point, will furnish abundant facilities for this purpose. On almost every farm where no springs appear, wet moist places will be found, rendering the ground cold and sour, and unfit for crops. At the foot of hills, water will ooze out, or little spots of marsh, producing nothing but coarse grass or flags exist; and in all such places draining will not only improve the soil, but will in most cases furnish sufficient water, when conducted to the surface, for the use of a stock of cattle. Let the drains be cut deep enough to reach the springs that cause the injury to the soil; let them be directed to some central point, or in such a manner that the greatest quantity shall be collected for use, and if necessary a small reservoir or well may be dug to allow the water to settle and become pure previous to passing into the pipes for conducting it to the watering place. If the drains and reservoir are well planned, a few rods of wood or lead pipe, or cement from water-proof lime, will give a head sufficient to raise the water into a trough, and give every facility for watering.

We have, during the past season, seen many watering places made from the water collected in under drains, which thus secured a double good to the husbandman;

and we are confident that nearly every one, the situation of whose farm renders such conveniences desirable, may, by turning his attention to the subject, readily be provided with them, and at an expense scarcely worthy of being named.

WHEAT.

Every thing relating to this plant, its production, cultivation, and improvement, must always be of paramount interest to the farmer of the middle and northern states, as well as those of the vast west, as on this crop the country not only relies for bread, but also for one of its most available articles, next to cotton, for the purposes of exportation. Western New-York has justly become celebrated for its beautiful wheat, and the excellence of its flour, an eminence which it is hoped will be long retained, and we think certainly will be, if the modes of culture best adapted for the production of this crop, are adopted and persevered in by our citizens, and pains taken to improve our varieties by proper selections at home, or importations of approved kinds from abroad. It should be borne in mind, however, that a variety producing excellent grain in England, will not necessarily succeed here;—causes existing in the nature of the climate and seasons may prevent this; neither should the failure for the first year induce the rejection of a promising variety, as it is well known that acclimization is as much required by plants as by animals.

We imagine that the best method of improving our varieties of wheat will be by selection, choosing one or more heads that appear to combine the greatest number of desirable qualities as it regards the berry, flour, length and shape of ear, quality and stiffness of straw, hardihood, and apparent liability to disease, and cultivating from these alone. We cannot doubt that in the hands of a man of science, skill and observation, results might thus be produced as favorable to the production of wheat in the United States, as the same course of labor, in the hands of Le Gasca, and Le Conteur, have proved to the agriculturists of England and Europe. We have scarcely heard of a sustained and well conducted effort to improve our varieties by selection: and but very few to effect an increase of our crops, by the introduction from abroad of new kinds, and thoroughly testing their qualities. The kind of wheat called in Cayuga county the Canada flint, and in Onondaga county the Cummings wheat, from the name of the gentleman who introduced it, and which is rapidly taking the place of the common flint wheat, is unquestionably an English wheat, introduced into Canada, acclimated, and from thence brought, as we know it was to the United States. We are assured by extensive farmers, that their wheat of the new variety, produced from one-fifth to one-third more per acre than the old flint wheat in equally favorable circumstances; and hence we may judge of the immense value that would have been added to the wheat crop of the state, had that variety, instead of the old, been generally used for seed the previous year. That wheat will degenerate is unquestionable; the experiments of Le Gasca place the matter beyond a doubt; and that new varieties may be made to take the place of the old, is equally certain. The cause of degeneracy is probably to be found in the want of proper care on the part of the farmer in the selection of his seed; and on this point he should take a lesson from nature, whose productions are, when the action is not interfered with, usually from the most vigorous and healthy seeds alone, these by their natural vigor taking and maintaining the precedence of all others.

But our object in commencing these remarks was not so much an essay on wheat culture, as to call attention to the communication below from a gentleman, who, by the successful experiment he has made in introducing a new variety of spring wheat, has shown not only the practicability but the feasibility of such undertakings. Some of the wheat grown by Col. Abbott the past season, was, we understand, exhibited at the Onondaga Co. cattle show and fair, and excited much notice from its fine appearance and its origin. We raised a number of bushels of this wheat from seed obtained from Col. Abbott, and find its qualities to correspond with those so well described by him. The contrast in the brightness of the straw, and freedom from lodging, between this wheat and some Italian wheat sowed beside it, was striking. It was slightly shrunk, however, as was spring wheat generally. The wheat of Col. Abbott, which we had the pleasure of seeing at his residence, is the finest spring wheat we have noticed this season; berry full and bright.

"EDITORS OF THE CULTIVATOR:—According to the promise made in the 6th No. page 82, of the Monthly Genesee Farmer, for 1839, in a paper relating to the conversion of winter into spring wheat, I enclose you the result of my experience with the new wheat the past season.

"It proves to be the best wheat I have raised this season, both in quality and in quantity. It retains many of its primitive winter wheat qualities, and is inferior in no respect, to the very best varieties of spring wheat yet known among us. In the same field, sowed the same day, the product of the new wheat was one and a half to one of the Italian, and while the latter was very badly lodged, the new variety stood erect, a bright stiff straw, that good judges might very readily have mistaken for fine winter wheat.

"I have never had so large a yield of wheat as many writers relate, but I have grown good wheat; and the present experiment produced at the rate of twenty-eight bushels per acre. By comparing the quantity and quality of this new production with the other varieties of spring wheat, I feel myself amply repaid for the labor of the experiment. It has shown me that new varieties can be produced, as old ones degenerate; and that the experimental farmer, may, by care and attention, produce the very best kinds of seed on his own farm.

"Yours, truly, W. ABBOTT.

"*Otisco, Onondaga*, 1839."

Agricultural Societies, Addresses, &c.

MR. GARNETT'S ADDRESS AT FREDERICK.

Among the many distinguished Virginians to whom that state is deeply indebted for the unceasing efforts they have made to place her agriculture on a high and secure footing, there are two eminently deserving of the respect such men are sure to receive, one of whom is Edmund Ruffin, the indefatigable and able editor of the Farmers' Register; and the other, the worthy president of the Fredericksburg Agricultural Society, James M. Garnett, whose address before the Society on their late, or twenty-second anniversary, is now before us. Such men deserve well of their country, as their labors are of more service than that of the whole of our politicians; since the efforts of the last only relate to the disposal of the wealth of the country; the object and result of the labors of the first is to increase it.

The address of Mr. Garnett is principally occupied with an interesting detail of experiments conducted by himself on a variety of articles, such as corn, roots, broom-corn, &c. &c. and in stating the conclusions to which he arrived. One of the most interesting of these experiments was the one instituted between the Baden and the Dutton corn; or rather its continuation from last year. Mr. Garnett comes to the conclusion that neither are exactly adapted to that climate and latitude. Some of the results stated by Mr. Garnett are the following. The Dutton corn which last year was a dwarf compared with the Baden and others, this year rivalled in height all the varieties cultivated, the Baden excepted, which it fully equalled in size and number of ears; thus showing the influence which climate exerts on plants. Another result was, that the Dutton corn, though the earliest, was considerably changed by the Baden, many white grains being mixed with the yellow, whereas no yellow grains were mingled with the white of the latter. This disposition of corn to mix and form hybrids should receive more attention from the farmer. In stating the fact that the color of the grain commences in the outer end of the grain, we think Mr. Garnett has made a little mistake in saying that the silk communicates with the small end next the cob. The reverse is certainly the case with our northern corn, the silk being attached nearer the outer than the inner part, and of course the change resulting from intermixture, if partial, should first show itself on the outer part. Mr. Garnett's remarks on the systemized frauds practiced by some seedsmen are severe, but from some late developments appear just. There must be a reform in this respect, or all confidence in such establishments will be lost.

Another of Mr. Garnett's experiments was on the efficacy of several kinds of manure in the cultivation of turneps. We extract his account of the experiment and its result:

"One of my turnep experiments was to ascertain which acted best, of the following kinds of manures—marl, having about 37 per cent of lime,—undrawn but old ashes,—bone dust,—fresh cotton seed mixed with pulverized mortar that had grown hard though recently prepared,—bone dust again,—old plaster pulverized,—and fresh stable manure mixed half and half with the sweepings around my stable. These were regularly spread in the order in which they are mentioned, in equal quantities as well as I could judge by the eye, and on equal spaces by measure as to length and breadth. Across these spaces I drilled, in rows fifteen inches apart, seed of the globe or Norfolk white turneps; the yellow Scotch, called the Aberdeen; the ruta baga, and Dale's hybrid turnep, which is also yellow. The seed of the last was at least five years old, but came up as well as the rest. Each kind of turnep appeared to be equally benefited by the same kind of manure; but there was an obvious superiority in the growth of all upon the spaces where the bone dust and the cotton seed with pulverized mortar had been applied; between the effects of which two manures I could perceive no difference. The plants on the marl and ashes spaces were the next best; but slightly better on the latter. The old pulverized plaster, and the fresh horse manure mixed as above stated, evidently produced less effect or benefit than the other manures."

The last extract we can give from this patriotic and able address must refer to the state of the times, and the means of remedying the evils that press upon the country:

"The last of my warnings and cautions, which above all others I would most earnestly press upon your attention, is against a moral disease of such universal prevalence, that it affects every class of society, but ours, I think, most injuriously; for I consider it the chief cause of the numerous emigrations heretofore made by our brethren to the new states and territories. In a word it is the disease of *Extravagance*—of *Expenditure beyond Income*."

And the manner in which he points out and enforces the grand remedies of industry, retrenchment, and economy, is eloquent and instructive. But our limits warn us to forbear.

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Cortland County Agricultural Society.

This Society held its annual meeting at the court house in Cortland village on the 8th ult. We learn that several able reports were read, and an interesting address made by the Hon. Wm. Berry, president of the Society. Mr. Berry having declined a re-election, the Hon. John Miller was chosen in his place for the ensuing year. The following officers were also appointed—Joseph Reynolds and Peter Walrod, vice presidents; Paris Barber, of Homer, secretary; Henry S. Randall, of Cortlandville, corresponding secretary; Rufus Boies, treasurer; Wm. Berry, Lyman Hubbards, Hiram Hopkins, Israel Boies, and William P. Randall, executive committee.

The annual fair of this society was held in Cortland village in November, which was well attended, went off with great spirit, and in the display of animals and vegetable products has been equalled by few similar exhibitions the present year in our State. There are few things more gratifying to the lover of agricultural improvement than these fairs, or farmers' holidays, which are becoming so frequent, as they show that the right feeling is operative among farmers, a feeling which leads them to rely on individual effort and associated strength, rather than on the grudged appropriations from the public treasury. The farmers of the beautiful valley of Cortland, have set an example of public spirit alike honorable to themselves, and beneficial to the community. The recorded results of such associations abroad and at home, when managed by intelligent and active men, prove that they communicate an onward impulse to agriculture, cultivate feelings of a fraternal nature among farmers, and by occasionally lightening the mind of its anxiety, and giving the body a respite from its labors, materially assisting to erase the furrow which time engraves on the cheek of long continued care.—Our best wishes are with every such institution—let them go ahead.

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Mr. Colman's Address.

We have now before us the address delivered by this gentleman at the annual meeting and fair of the Middlesex Agricultural Society. It is in Mr. Colman's best manner, and well calculated to give the professors of agriculture a proper view of the importance and honor of their calling. The introduction is beautiful, and in effect combating the doctrine that every man is as idle as he can be, he shows that the natural state of man is one of action, and that he is happy in having it thus. It seems a little singular to hear a descendant of the Puritans, talk of the position of man in Eden and his consequent fall and expulsion as "the beautiful allegory of Genesis," but the important moral he deduces from this allegory will perhaps excuse the selection of such terms:

"It is evident that man could not endure this condition. He would have sunk into effeminacy under such indulgence. Therefore it was that the Creator expelled him from Paradise, and sent him out to till and dress the earth; and to get his bread by the sweat of his brow. So long as his nature is what it is, the Divine Providence could not have ordained for him a greater benefaction. The cultivation of the earth, therefore, is man's duty and business; made so by his constitution; by the necessities of his condition; and by the appointment of his Creator. Let us not complain of it. Let us thank God, for we have great reason to thank him that it is so. If we must complain, let us complain as we may with the best reason, of every institution, sentiment, custom of man, and the world is full of them, that interferes with this great law of his being."

Mr. Colman's remarks on the nature of wealth; what constitutes it; and its true sources, are perfectly correct. He shows that it is labor alone; labor of some kind constituting productive industry, that originates wealth. Of course the farmer, the tiller of the soil, is one of the greatest contributors to a nation's wealth, and so far as that, is a blessing to its real prosperity. There is in the following extract too much truth—to many, bitter truth, to render it palatable to all:

"We have, it is true, in modern times invented another mode of increasing national wealth, and that is by the creation of bills of credit, bank notes, promises to pay. Many of us are simple enough to believe that we grow rich, just in proportion as we can multiply and circulate these promises to pay. Now I admit that to a certain extent, and within rigid limits, this may be a wholesome operation; but is it any actual increase of wealth? Does a man grow rich as he multiplies his promissory notes of hand? In private life this would be deemed an Irish way of getting rich; in associations it does not differ from this. I mean where it is mere credit; not resting upon actual accumulations, nor based upon prospective results, which are as certain as any thing future in human calculations can be. But when these promises to pay are once made, who is to pay them? If they are ever paid at all, it must be by the hand of productive labor, by the products of the fields or the sea. If productive labor does not make them good, they will never be good for any thing. Every bill of credit that is issued, is an assessment upon the industry of the country. It would have been well for the public, had they seen this before they incurred the tremendous losses they have already suffered. It would be well if they could now see it in season to guard as well as they may against the tremendous explosions which must accompany the extravagance and reckless extension of a system fraught with innumerable evils to the honest industry of the country, and adapted to frame the profligate idler's palace out of the laborer's bones."

This is truth, sober truth, clearly and strongly expressed, and to which the productive classes would do well to listen. But sitting in taverns and railing at the banks, or the government, will not remedy the evils under which this nation groans. The whole cotton crop of the south, will this year but little more than pay the balance of trade against us, leaving our former enormous foreign debt, to which must be added the frightful accumulations of this year, to hang like a millstone on our productive industry, and paralyze all

our energies. It is idle to disguise the fact. We are fast becoming the bond-slaves of the brokers of London and Paris, and the destinies of our nation, if not openly, yet actually, wielded by foreigners. So long as we continue to add to our foreign debts, so long must we be subject to the caprices and fluctuations of the times, and if our farmers could be induced to rely more on themselves and their own productions, and less on the manufactures and workshops of Europe, there would at least be a reasonable hope of brighter days. Such fairs as those happily becoming so common in this country, have an excellent tendency to arrest the evil; the addresses and labors of talented individuals may effect still more. Among the first of these, ranks Mr. Colman, and we trust his book will be extensively circulated and read.

Domestic Economy.

We have been requested, for the benefit of our numerous lady subscribers and readers, to give an occasional article on subjects connected with domestic management; a request with which we shall comply with pleasure, albeit we do not pretend to be versed in the mysteries of cookery, or the kitchen; and believe that men should eat to live, and not live to eat.

Coffee has become so general a substitute for tea, as a morning beverage with farmers, as well as others, that a short account of the most approved process for making it may be acceptable. Multitudes of substitutes have been attempted for coffee, but with little success; and the most of them are unpalatable and unhealthy. Mocha or Java coffee is the best, but that from the West Indies is the most common and cheapest. No imperfect berries should be allowed in it. Much of the goodness of coffee depends on the burning. When it reaches the proper point, it will be of a dark brown throughout, and brittle. Roasted in a coffee roaster it is best, as in an open vessel much of the aroma or flavor, depending on an essential oil, is lost. Where the best coffee is required, it should be roasted, ground, and drawn at once; as any delay in these processes injures the quality. An ounce of coffee or a good table spoonful to a pint of water is about the proper quantity. The water should be poured upon the coffee boiling hot, and boiled about twenty-five minutes; longer than this is prejudicial. Various methods are used to clarify or render coffee clear.—Some people drop in an egg, and stir it up with the coffee, just as the roasting is completed; the albumen of the egg assists in rendering it clear when cooked. Others use fish skin for clearing it; a piece as large as a shilling piece is sufficient. Some use a filter: and others strongly recommend tying the ground coffee in a clean flannel cloth, which is then placed in the boiling water. A gill of cold water poured into the coffee-pot when taken from the fire, and allowed to stand a minute, will render it tolerably clear, but not thoroughly fine. Much of the goodness of coffee is depending on the quality of cream and sugar used with it. Skimmed milk and rich coffee are incompatible.

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Poultry.

There is many a good housewife that can roast or boil a chicken, turkey, or goose, to admiration, that does not understand determining the age of the fowls they are to cook, and hence serious mistakes sometimes occur; part of the chicken-pie, or one of the brace of roasted fowls being over-done, while the other is utterly unfit to send to the table. They who undertake to cook a pullet with its maternal progenitor of the third remove, or spit a ten months duck or goose by the side of their grandsires, will probably be unsuccessful in producing a dish to their satisfaction.

The breast bone of a fowl gives one of the surest indications of the age of the bird. If it is soft and bends or gives easily, the fowl is young; if it is hard and inflexible, whatever may be the quality of the bird in other respects, time will be required to cook it. Much may also be known by the appearance of the toes and feet—those of the young being usually perfect and flexible, while older ones rarely have their feet in that state. In young geese, the cavity under the wings is very tender, the web between the toes thin and partially transparent, and if the head of a pin is passed along the breast or sides, the skin will readily tear like fine paper under a knife. By attending to these points, disappointment may at times be avoided, as the time required for cooking in any manner, young and old poultry, is widely different.

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Preparation of Souse.

Pig's feet, ears, &c. when properly prepared or cooked, make one of the best of dishes; and as these can usually be procured at a low price, the use of them at times may be economical. In preparing them the water in which they are cleansed, should not be very hot; the hoofs should be peeled off with a sharp-pointed knife, the hard, rough places cut off, then thoroughly singed, and boiled until they are thoroughly tender, or till they are with difficulty taken out with a fork. Four or five hours are generally sufficient. When taken out, the souse should be put into cold water. The bones are then to be removed, and the whole carefully packed down tight, in a wooden or stone vessel. After it is packed close, boil the jelly-like liquor in which it was cooked with an equal quantity of vinegar. Salt as required for the seasoning, and add cloves, allspice, and cinnamon, at the rate of about a quarter of a pound to a hundred weight of the meat. The vinegar with these ingredients added, is to be poured upon the souse scalding hot. When wanted for cooking it may be cut in slices, and prepared either by broiling or frying—the latter is the most preferable.

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Hard Water.

There is nothing that gives more annoyance to the housewife in the management of her domestic affairs, than what is usually called hard water. This is water impregnated with the muriate or sulphate of lime, the acids of which unite with, and neutralize the alkali of the soap she uses, leaving the grease free to float like a dirty scum on the water, and rendering all attempts at clean washing, a failure. The best way to avoid this evil, is for the farmer to provide a good rain-water cistern; but where this has not been done, water may be rendered fit for washing in two ways—the first is, to "put a couple of quarts of wheat bran into a bag, which is placed in the water, while heating over the fire, and the water, when hot enough for use, will be found soft. This quantity of bran has been found sufficient for any common washing." The second method is to use soda, for the purpose of neutralizing the acid of the substances that occasion the hardness. "A few ounces of soda will soften a hogshead of the hardest water. It is greatly superior to either pot or pearl-ash; (or the common ash-ley which is sometimes used for the same purpose;) giving a delicate whiteness to the linen, without the slightest injury; and it never, unless excess is used, in the least affects the hands." The expense of either method is trifling, compared with the trials of patience arising from unprepared water.

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Batter Cake.

The following is from a Lady:—"One pint of cream, one pint of sour milk or buttermik, four eggs, a tea-spoonful of salt, saleratus sufficient to destroy the acidity of the milk, and three pints of sifted flour, or enough to make a stiff batter. Stir the articles well together, and bake in a deep dish. To be eaten hot with butter.

Extracts from our Correspondence,

ANSWERS TO INQUIRIES, &c.

The following is from an esteemed contributor in New-York, and refers to some remarks of ours on an extract from a correspondent, who is, we believe, a native of Great Britain, and a first rate farmer. The remarks may be seen in the last volume of the Farmer. On the subject of draining, there is no necessity for 're-considering' our opinions. We are its most strenuous advocates, having abundantly experienced its beneficial effects on our farm, and consider it essential to any system of good farming. We are at the same time aware, that expenditures for this purpose, to the extent practiced in Great Britain would be ruinous here; and should our farmers in general attempt such a course of expense, they would soon find themselves without a farm to drain.—Four-fifths of the farms in the United States would not sell for more than from thirty to forty dollars per acre; and on such farms to attempt an extended system of draining, at from 50 to 80 dollars per acre, where the land, when the process was completed, would not sell for more than half the sum, would be an absurdity, of which we are confident few men would be guilty. Our correspondent seems to overlook the difference between the profits of a farm near the city, and those in the country; and this is the point which must determine the policy of expenditures. If by an expenditure of 80 dollars, an acre of land worth 200 dollars, can be made worth 500 dollars, few men would hesitate about the outlay. If a man expends 80 dollars in draining an acre of land worth but 40 dollars, which would only be worth 50 afterwards, we apprehend common sense would pronounce him in "not a very good way."

"I have drained a few acres at an expense double the extravagant sum ($70 or $80 per acre,) mentioned in the editorial remarks, and I think the outlay has been highly judicious. Not one farmer in ten, who has lands that require draining, can pull up stakes and hie away to other sections of the country, and buy lands cheaper than he could drain his own. But very few farms require more than a comparatively small portion of them to be drained—and this portion, owing to its particular location, its appearance and other circumstances, must be drained at a price even greater than that for which the owner can buy superior lands in the neighborhood. I wish, Messrs. Editors, you would re-consider your decision, and I am sure you would come to the conclusion, that nine-tenths of the farms in this country that are injured by excess of water, should be drained as soon as the owners can possibly do it. I may add, that nearly the same exceptions may be taken in respect to the remarks on gathering leaves for a manure. S. F."

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Water Proof Cloth.

"As the cold and wet season of the year has commenced, it would be of great service to farmers, when exposed in rainy weather, to wear a coat, or large cape, made of some light, but water-proof cloth, to throw off the wet; and I would thank you, or any of your numerous correspondents, to inform me of the best mode of making cloth, either cotton, linen, or woolen, water-proof, by means of India Rubber or other substance, provided the method be easy and practicable, and that the cloth will be durable and not liable to crack in wearing."

The substance most commonly used for making cloth water-proof, both in this country and abroad, is some one of the varieties of the gum Caoutchouc, or India Rubber. All that is necessary is to dissolve the gum, and with it to saturate the cloth. Purified sulphuric ether will dissolve it, as will spirits of turpentine, but the last solution is so long in drying, as to be objectionable. The fluid now commonly used is purified naptha from coal tar, (the Seneca oil of the shops, is this substance formed by nature,) which is a cheap and powerful solvent, and does not change the properties of the gum. A thin covering of this solution laid on cloth, renders it impervious to moisture.

A late volume of the London Encyclopedia gives the following directions for its preparation and use. In Europe, caoutchouc is also used extensively in the manufacture of water-proof cloth. For this purpose it is usually dissolved in the oil distilled from coal tar, and spread upon the surface of a piece of the cloth, upon which a similar piece is then extended, and the whole passed between a pair of rollers. Thus the fabric consists of two pieces of cloth, with a layer of the India rubber interposed, and uniting them together. The cloth thus prepared is so impervious to moisture, that floating or hydrostatic beds for invalids, are formed of it, and even beds and cushions are rendered elastic by inflating them."

Notwithstanding, the preparation of water-proof cloth may be performed by individuals, we imagine it would be preferable to purchase such cloth already prepared, at some of the manufactories of water-proof cloth and goods. Of its value for the purpose suggested, there can be no doubt.

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Internal Improvement.

"A Traveller" is respectfully assured, that although in the main we agree with him on the question he has discussed; yet, as the subject is not strictly in accordance with the design of this paper, and may be construed as an interference with matters more properly treated elsewhere, we shall not insert his communication.—We are the decided advocates of internal improvement, believing, that wisely constructed, and well managed, they aid the producing classes most essentially; and desire their progress as far and as fast as the undoubted resources of the state treasury will justify. We are farther as decidedly opposed to any crude or ill-digested projects, founded on conjecture, or calculations manifestly erroneous, and which in their progress may involve the expenditure of uncounted millions, and create the hazard of entire loss, or the fearful result of future taxation. *This* state has so far done honorably; that career is not yet closed.

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East and the West.

We have received from Liberty county, Mo. a well written paper, defending the west against some of the charges which eastern tourists and writers have brought against it, and with no inconsiderable success. As on all these subjects however, we know but one country and one people, we must decline publishing the paper; confident that whatever of error exists, will be speedily dissipated by enlightened intercourse; and knowing that none but feelings the most friendly and fraternal prevail in the Atlantic states towards their brethren of the west, we cannot willingly aid in causing or perpetuating a feeling of querulousness or complaint.

We thank our correspondent for the suggestion in his last paragraph, and will endeavor to make such arrangements as shall meet his wishes and that of others, in regard to a supply of the back volumes of the Cultivator.

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Silk Culture.

Our respected correspondent, T. W. Smith, Fauquier county, Virginia, requests us to give a plain and unsophisticated account of what we ourselves know experimentally about the profits and losses of raising mulberry trees for the exclusive purpose of making silk—and asks that our experienced subscribers will do the same. We quote the last paragraph of his letter:

"I have myself at this time upwards of 20,000 of the morus alba (four years old next spring,) for all of which I now only ask $100, and must take them up and throw them away in the spring, if I cannot have some assurance that the manufacture of silk, will be more profitable than the raising of wheat and corn."

We answer for ourselves, in the first place, that we have never attempted the cultivation of the mulberry either for silk or for sale; have never made a single experiment on the subject, and of course can have had no personal experience or knowledge on the subject from our own practice. We have had, however, from the first, great confidence that the culture or production of silk, was destined to occupy a prominent place among the articles grown by our agriculturists, and the experience afforded the past year, has confirmed us in the opinion, that for ease and profit, silk may soon rank with our most valuable staples. The production of silk will be found to be a very different matter from growing mulberry trees, partaking less of the nature of speculation, and taking its place at once among the sober occupations and business of the farmer and his family.

Two instances have come to our knowledge of the operations of the last season, the facts of which are beyond doubt, and which will show what *has been done* in the production of the raw article, of which, by the way there is nothing has a quicker and more certain sale. "A Connecticut Farmer, the past season hatched out some worms to be fed by his children, three in number, who went to school every day; and they gathered leaves and fed the worms in the morning; returned at noon to feed them again, and at night completed the feeding for the day. The worms had little attention, but what was

given by these children, and the silk when reeled, was sold for one hundred and seventy-five dollars." The other instance is the experiment made by the Rev. Mr. McLean, of New-Jersey, the past season; and is, we think, perfectly conclusive not only as to the practicability, but the profit of growing silk. From one quarter of an acre of ground, planted with the morus multicaulis last spring, he fed worms which gave him of fine reeled silk twelve pounds, or about 50lbs. per acre. This is a low, and we think a perfectly safe estimate of the quantity that can be grown from an acre of mulberry trees, even where they were to be taken up every winter, and set out in the spring, (where the tree will endure the winter, the amount will of course be much increased,) and at the very lowest prices of the raw material, this crop would give a greater profit per acre, than could be derived from almost any other source.

We shall give Mr. McLean's paper an early insertion, as it is in its details more full and clear than any which has yet come to our notice.

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Inquiries.

A 'Boston Subscriber,' has propounded a number of queries, which we shall answer seriatum:

"1. What is your method of employing liquid manure?"

Liquid manure, as the term is understood abroad, we have never used either on grass or plowed lands. Where the proper substances are provided, there will be little or no liquid manure in our stables or yards; it will be absorbed, and may be applied with the other parts of the manure at once to the soil. Where manure is with difficulty procured, the modes of preparing and using liquid manure may be adopted with profit; at present its combination with other materials will be preferred by the farmer.

"2. What is your opinion of fall plowing for New-England soil?"

The benefit or propriety of fall plowing in New-England and elsewhere, is depending on the quality of the soil itself. Light soils do not require, and are not benefited by fall plowing; but those that are compact and heavy, and abound in clay, are benefited by such plowing, frost being one of the most active agents we have in pulverizing the soil.

"3. What is the difference of profit between milking cows twice or three times per day; and what the difference in the cost of keeping or pasturage?"

We know of no experiments that determine these points; they are of but little consequence, however, and our correspondent can easily test the matter for himself, if he chooses to institute the proper experiments.

A variety of plans for improved farm buildings, barns, &c. have already appeared in the Cultivator, and the suggestion of our correspondent as to barns with cellars shall not be overlooked. Hogs require both light and air, but barns can easily be constructed which will allow these, or other animals, to be kept under them.

We are unable to name any agent for foreign agricultural periodicals; but in all our principal cities, booksellers may be found, who will order for subscribers such works as they may desire.

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Suffocation of Wheat.

Extract of a letter from a correspondent in Western New-York:

"The winter thus far has been one of unusual severity. The mercury has been lower than it has been for a number of years, and below 0 far more frequently than usual. The heavy body of snow which accompanied the storms of December, and the fore part of January, has had the effect of preventing the freezing of the ground, or rather taking out what little frost was in it previous to the fall of snow. In this state of things, the wheat crop is always in danger; you recollect how much the country suffered in 1836, from this cause, although it was not in operation at so early a period of the year. When the ground is unfrozen, there is always, owing probably to the slow thawing going on, a space between the earth and the overlaying snow; and as in this space the air cannot circulate, it speedily becomes deteriorated, parts at first with its oxygen to the plants in the unfrozen earth, and then produces on the plant the same effect as confinement in carbonic gass does on vegetation. The more dense and solid the snow becomes, as it always does towards the spring of the year, the more urgent the danger; as at this time the warmth is increasing, and consequently the greater the space occupied by the confined air. At this time of the year, the wheat plants, if dug down to, will be found a fine green color, but as soon as the snow goes off, and it becomes exposed to the sun's light, it speedily turns yellow, and then white and dry. In the year above mentioned, I lost entirely 16 acres of the finest looking wheat I ever saw on my farm. It was oak land, had a gentle slope to the east, and the snow did not disappear from it till in April. It lay very evenly over the whole field, and when it went off, the wheat, to an unpracticed observer, would have appeared fine. As fast as the snow disappeared the whole dried, having evidently been suffocated, and not a bushel of wheat was produced from the whole ground. The wheat as yet is not hurt; but if the snow continues to accumulate, or we have no thaws to bare the ground, before this snow is carried off, in the spring, it can hardly fail of suffering more or less. For this danger there appears to be no available remedy; and I never knew but a single instance in which one was attempted. A farmer had some five or six acres of wheat on which the snow lay equally, and till late in the spring. By digging through the snow he found there was no frost, and thus his wheat was in danger of suffocation. The snow was then about a foot in depth, and very compact; but by taking advantage of its softening in the middle of the day, and driving his stock of cattle repeatedly over it in every direction, he filled the snow with holes, partially expelled the vitiated air, and gave an opportunity for its replacement by atmospheric air, and in that way saved his wheat, while others similarly situated, yet who neglected such precaution, suffered a total loss. Perhaps this preventive might be used oftener than it has been, and it might be successful. At any rate where practicable, no injury could result from attempting it where the wheat crop is similarly situated. H. M. G."

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Inquiry---Roots.

"Messrs. Editors—I should be pleased to have your opinion on the following points; what kind of roots will be the most profitable for us, in this section of the country, to cultivate? Should roots be washed when fed to animals? and is cutting or slicing them necessary for feeding to cattle?—*Kentucky, Dec.* N. S."

From what we know of the general character of the soils of that State, and the temperature, and frequent dryness of their seasons, and the fact that the ruta baga frequently fails in a dry soil and a dry summer, we should suspect that valuable as the turnep is, the sugar beet or the carrot would be better for our correspondent than that root. As the turnep must be sown late, just as the period of our summer heats is commencing, it does not get as firmly rooted as plants sown earlier, and consequently cannot resist a drouth, should one occur, as well as such. We are of the opinion that for the Middle States, the sugar beet will become a favorite root, not only for the making of sugar, but for feeding animals. The moist, humid air of England, secures their turnep crop against drouth, while it is unfavorable to the beet; here the seasons are in a manner the reverse, and it is not unreasonable to suppose, in this respect, practice must be so too.

We have never found it necessary to wash roots for animals, unless grown in a tenacious soil, and gathered at an unfavorable period. Turneps, beets, and carrots, thrive best in a soil loose and friable, and if gathered when dry, there will not enough dirt adhere to the roots to produce any injury in feeding. But if grown in ground tenacious in its character, or where the earth is wet, so much dirt will be found on them as to render washing necessary. The same remarks apply to potatoes, which are extensively used for feeding swine, and which are usually prepared by steaming or boiling.—We have never found any advantage in washing them when gathered dry and in good order, and from the avidity with which swine, when confined, seize on fresh dirt when accessible, think it possible it may be beneficial in small quantities, rather than hurtful.

Roots, when fed to horses, hogs, or sheep, should be cut, particularly the ruta baga; but when the latter are fed to cattle we prefer them whole. For a number of years we have grown and fed turneps to a considerable extent. At first we were in the habit of slicing or cutting them, but we found cattle were very liable to be choked with the pieces when cut, and rarely or never when given whole. The practice of cutting for cattle has therefore been wholly abandoned, and we have not had a creature choked since. It is a pleasure to see an animal used to the ruta baga, making his way with dexterity and ease into the large yellow roots; and feeding in this way is no inconsiderable saving of labor, where a number of cattle are to be fed.

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"A Subscriber," at Knoxville, (Tenn.) who requests a "detailed account of Mr. Bement's Forcing Pump, &c." will find his wishes gratified in our next paper, Mr. Bement having furnished us with the desired description, and a drawing of the apparatus, which is now in the hands of the engraver.

Giant Rhubarb.—Several of our friends have requested us to send them a few seeds of this recently introduced variety of the Pie-plant, which we would do with pleasure could the seeds be procured, but none are to be had in this city.

Dutchess Co. Ag. Society.—The report and Constitution of this Society, furnished us by a friend at Poughkeepsie, were published at length in the Genesee Farmer. The Society is to meet on the first Tuesday of this month, to complete its organization by the choice of officers, &c., and we trust, from the spirit already evinced, that measures will be adopted to enable the Society to prosecute its objects in such a manner as to give a new impetus to the interests of Agriculture even in this highly improved county.

Are your Apples good?

If not, February is the time to make preparations for improving them. There is a most surprising negligence among farmers on the subject of fruit, which is the more inexcusable, now when the value of fruit, apples particularly, is so much better understood than it formerly was. It should never be forgotten that a tree that will yield from 50 to 100 bushels of large, fair, and beautiful apples, which would be worth in any market from 25 to 50 cents, occupies no more space than a tree producing perhaps half the quantity of sour, bitter, inferior apples, that even hogs, unless threatened with the horrors of starvation, will not touch. Grafting is the remedy for such fruit, and there is no one who may not now sufficiently understand the process of grafting, to perform all that may be necessary to furnish an assortment of the best apples the year round; or if a farmer prefers to employ some one to do this business for him, such men can in general be readily obtained at the most reasonable rates. The farmer himself, however, should procure his own grafts, label them properly, and then, when put in, he will be certain of the fruit he wishes, which is not always the case when itinerant grafters are employed, that find their own scions. Let the farmer then look about him during this month, and procure such apple grafts as will give him an ample supply of all the most desirable kinds, not only for the table, cooking, and the whole year, but such as will be the most valuable for feeding to swine or cattle, and have his poor worthless fruit-trees filled with these scoins, and in a very few years he will reap an abundant harvest for his pains and expense. When an orchard is to be commenced, the better way doubtless is, to apply to some nursery-man upon whom reliance can be placed, and make such selections as may be wanted, of trees grafted when young. This method will ensure good fruit, as when well planted, such trees rarely fail, and the danger of failure, which sometimes exists where large trees are grafted, is thus avoided. We then again ask the reader, are your apples good?—and if not, urge upon him the importance of attending to the matter without delay, as every year's delay in grafting, renders anothers year's use of worthless fruit necessary.

DICTIONARY OF TERMS

USED IN

Agriculture and its Kindred Sciences.

ANALYSIS. To determine the value of any soil, or to be able to correct any fault in the original constitution, or any deficiency arising from improper cultivation, it is necessary that the nature and proportion of the substances composing it should be understood. In agriculture this examination is termed analysis; and in its simplest, yet still effectual method, may be practiced by every farmer. The implements required are a pair of scales, accurate to the tenth part of a grain; a crucible; some muriatic acid, and a few small vessels of china or glass.

The earth to be tested by the farmer should be taken from a few inches below the surface, and be an average specimen of the field, or the soil to be examined. The quantity to be examined, say 2 or 400 grains, is to be slightly pulverized or well mixed together. Put of this, 200 grains in a crucible, and heat it to 300° of Fahrenheit, or bake it in an oven, heated for bread, for 15 minutes; cool and weigh. This will show the absorbent power of the soil, and as this is depending mainly on the animal and vegetable matter, if the loss is considerable it is a decisive proof in this respect of fertility The absorbent power varies from 1 to 12 per cent.

After weighing, heat it again in the crucible to a red heat, and until the mass shows no bright or sparkling particles, stirring it with a glass or iron rod; cool and weigh, and the loss will be the animal and vegetable matter in the soil.

Take 200 grains of the dried earth, mix it thoroughly with a gill of water by stirring it for several minutes. Let it stand for three minutes, and turn off the muddy water into another glass. Dry the sediment in the first glass at a high heat, weigh, and it gives the silica contained in the soil. Let the water turned off settle clear, turn it off, dry at a high heat and weigh; this gives the alumine or clay.

Put into a suitable glass or flask, one fourth of a gill of muriatic acid and water in equal proportions, and balance the scales carefully. Put into this mixture, 100 grains of the earth, let it stand till all effervescence has ceased, which will sometimes be an hour or more; carefully note the weight required to again balance the scales, and that may be set down as the weight of carbonic gass expelled, say six grains. Then as 45 is to 55 so is this weight to that of the base, or the lime. In this case the lime would be 7½ per cent.

To ascertain if earth contains iron, stir the muriatic acid and water with a strip of oak bark, and if iron is present in the liquid the bark will turn dark. To ascertain the quantity, put in prussiate of potash till it no longer forms a blue precipitate, let it settle, heat the deposit to redness, carefully weigh the remainder, which is oxid of iron.

To determine the presence of gypsum, take 400 grains of earth, mix one-third the quantity of powdered charcoal, keep it at a red heat in a crucible for half an hour. Then boil the earth in a pint of water for 30 minutes, filter the liquor and expose it for some days in an open vessel. A white deposit will be sulphate of lime, and the weight will determine the proportion.

These processes are all simple, and can be performed by any one. By them we obtain—1st, the absorbent power; 2d, the amount of animal and vegetable matter; 3d, the silica or sand; 4th, the alumine or clay; 5th, the carbonate of lime; 6th, the oxides of iron; and 7th, the gypsum, or plaster of Paris. The salts exercise a great influence on vegetation; but as they principally depend on the animal and vegetable matter in the soil, and as the determining their qualities and kinds are too difficult for the analysis of the farmer, the processes are omitted. The above ingredients are all that exert a marked influence on the fertility of soils, and on their proper proportion its goodness depends. If soils contain too much silica or gravel, they are porous; and if too much clay, retentive. The last is usually the worst fault, and may be known by the water standing upon it after rains, remaining unsettled for a long time, owing to the clay

held in solution. Wheat winter kills on such soils; on calcareous gravelly ones rarely. Good soils usually contain from 65 to 75 of silica; from 10 to 16 of alumine; from 4 to 10 of lime, and varying proportions of vegetable matters, animal, and mineral salts, &c. The anylasis of soils forms one of the most decided steps in the improvement of agriculture, as it clearly points out what is wanting to remedy any defect, and give ease of working, and abundance in product. Every farmer should understand the nature and composition of his soils, and may do so, with little time, and at a mere trifle of expense.

ANIMALCULÆ. The microscope has opened to the observation of man a race of beings so small as to be utterly invisible to the naked eye, yet endowed with all the functions of vitality and perfectly organized animals. Some of these are called Infusoriæ, from being always found in water where plants are decaying, and some Diatoniæ, but all included under the term animalculæ. They have long been regarded more as objects of mere curiosity than any thing else; but recent discoveries seem to indicate that these minute insects have had an important influence in modifying the crust of the earth, and giving it the character it now possesses. Mountains of flinty rock in Silesia have been found by Ebrenberl to be wholly composed of the shells of animalculæ; and in this country masses of remains of the infusoriæ have been found several hundred yards in extent. Unlike the shells of the molusca and testacea, which are lime, the shells of these invisible animals are found to be unchanged by fire, and composed of pure silica. All bodies of long stagnant water, such as those where peat is formed, or bog earth deposited, abound with infusoriæ; and Professor Bailey of West Point has found at the bottom of peat earth and in it, immense quantities of these minute remains. It is a curious fact that animals invisible in themselves to the eye, should be able in the course of centuries to form mountains, change the face of continents, and exert an influence by no means trifling on the labors and productive industry of man.

ANNUAL. This term is applied to plants that arrive at maturity in a single year and then perish. The stem of annuals is generally of rapid growth, porus, and abounding in the juices necessary to the perfection of the seeds in a single season. The herbage of some plants is annual, while the roots are perennial, or remain from year to year. Maize is an example of a proper annual; the grasses, of perennial roots with annual herbage.

APHIS. A family of insects that prey extensively on plants, and are endowed with such astonishing powers of reproduction, that though insignificant as individuals, they are formidable in their numbers, and in most years occasion more or less loss to the agriculturist. The congregations of aphides consists in spring and summer of apterous and wingless individuals, and of nymphæ with undeveloped wings. They have no mouths, but are provided with beak-like suckers, which they insert into plants, and feed on the juices. Almost every cultivated plant or tree has its peculiar family of aphis; and those trees or shrubs that are wild, or found only in the depths of the forest, cannot claim exemption. What is called the apple tree louse, is an aphis; and on lifting the scale-like covering, the depredator, and its implement of suction, can be seen. Another species infests the tender shoots of grass, and the thrifty shoots of the apple and other fruit trees, and if allowed to multiply unmolested produces great injury. The American Blight, as it is called in England, or the *Aphis lanata* of the entomologist, is a destructive species, when permitted to make a lodgment on the apple tree, but fortunately the cotton covering in which it is enveloped renders it easy to discover, and thus timely put the fruit grower on his guard. In passing through the Tonnawanda swamp from Lockport to Batavia in 1838, the Alder, *glauca*, that lined the road was literally loaded in places with a species of aphis, the long cottony filaments of which, erect in air, seem to be waved at will, and simultaneously, giving a most singular aspect to the branches on which colonies were planted. The turnep is greatly infested with the aphis, as is the rose, fennel, parsley, and many other plants cultivated for use or ornament. The aphis, while fixed by its sucker to the branch or the leaf, elaborates a sweet honey-like fluid, clear as water, and this is projected at will from two tubes in the hinder part of the body. We have seen in the sunshine, these drops falling like the spray of a waterfall, from a fruit tree on the leaves of which millions of the aphis were feeding. It is for this substance that colonies of the aphis are so frequently visited by the ant, which drinks the sweet fluid as it is thrown out by the aphis. Soapsuds, and a strong decoction of tobacco, have been deemed most effectual in destroying them; though when a foothold is once obtained, from their rapid multiplication, extermination is difficult.

APIARY. The place or building in which bees are kept, is termed an apiary; and where these industrious insects are kept for profit, or for observation, much care is sometimes taken in this department of domestic management. There is no question that keeping of bees, may be made a source of considerable profit at very little expense, as their feed costs nothing, and a residence is provided with the very hive in which they are placed. Moveable apiaries are common in eastern countries; and a long boat, with a hundred swarms of bees on board, accompanied by the owner, may be seen floating down the Danube, the Po, or the Nile, anchoring where materials for honey promise to be abundant; and moving onward when the district is exhausted of its sweets. Among farmers, too little attention is usually paid to the apiary; the hives being left exposed to the storms and cold of winter, and the intense heat of summer, without protection. Bees, like other domesticated creatures, will well repay care and attention.

AQUATIC. Plants that live and flourish in the water are termed aquatic. There are also aquatic animals and birds. All our lakes, rivers, and the ocean, furnish specimens of aquatic plants, some of which are of great use and value. A large part of the soda of commerce is obtained from a sea weed, which, drifted ashore, is dried and burned for the soda of the ashes. Hundreds of square miles in the equatorial Atlantic, at some seasons of the year, are covered with this marine vegetation. Some sea weeds, as the algæ, that grow as they float in the water, attain a length of several hundred feet. The rice plant of the East Indies and the Carolinas, is an aquatic plant, and probably contributes as much to human subsistence as any plant on the globe. The wild rice, *Zizania aquatica*, of our northern lakes and rivers, is of great service to the native tribes of those regions, feeding the immense quantities of water fowls of all kinds that visit and breed in those inhospitable climes, as well as furnishing food to the natives themselves when their usual supplies from other sources fail them. The flags, rushes, and other grasses that grow in the waters of the lakes, or other quiet waters, the pond lily, &c., are further examples of aquatic plants.

ARGILLACEOUS. A term applied to soils in which clay forms a principal ingredient. It was derived from *argil* or clayey, as alumnious from alumine. In agriculture, argillaceous and aluminous are words of the same import, and mean soils or earth in which clay predominates. "*Analysis*" shows how the proportion can be determined.

ARTESIAN. A kind of well made by boring through the successive strata of the earth until water is found. This name is derived from Artois in France, where the system of boring was first successfully adopted. By penetrating the rocky crust of earth in this way, the water frequently rises to the surface, and flows a living stream; in other cases it rises so as to be obtained without difficulty. In this country wells have been bored to the depth of a thousand feet, and those of 500 or 700 are not uncommon. Various products are obtained from the earth in this way. In Albany, a valuable mineral spring has been reached by boring. The great quantities of water at the Kenhawa salines are obtained from Artesian wells. Springs of carbonated hydrogen, that burn with a perpetual flame: and immense reservoirs of petroleum, (the Seneca oil of commerce,) have been discovered while boring for salt or for fresh water. Artesian wells have been sunk in the deserts between Cairo and Suez, and abundant supplies of water obtained; and wherever the borings have been properly and perseveringly conducted, either in this or foreign countries, water has usually been procured.

ARTICHOKE. Two plants of this name are cultivated for food; the first *Cyanara scolymus*, is chiefly cultivated in Europe for culinary purposes. The part that is eaten is the receptacle of the flower, divested of the unopened florets, and the bristles that separate them. The head thus prepared is boiled plain and eaten with melted butter and pepper, and is deemed wholesome and nutritious. These *bottoms*, as they are termed, are also made into a variety of dishes, stewed and highly seasoned. The other plant, is the one known as the Jerusalem artichoke, *Helianthus tuberosus*, and is cultivated for the root alone. It is a species of sunflower, grows wild in several parts of South America, and the root is potatoe shaped. The roots are valuable as a food for animals, and are not unpalatable to man. They are found in most of our gardens, an improper place for them, as they are apt to spread, and are somewhat difficult to eradicate. In this country, few attempts have been made at their field culture, but those have been profitable. In highly cultivated grounds in England and Holland, they have been found extremely productive, 70 or 80 tons of the roots having been gathered from a single acre. Their flavor is much like that of the former artichoke, when boiled and prepared for the table; and they are very valuable for feeding hogs and store pigs.

ASHES. When wood is burned in a position that excludes the air, the product is coal; if combustion is performed in open air, the produce is ashes. Ashes by being leached, or having warm water passed through them, are deprived of the alkali they contain, and this is obtained in the shape of potash, or soda, by evaporation. Different woods, and plants, vary much in the quantity of ashes and alkali they produce; the fir, beech and poplar, ranking the lowest; and the box, willow, elm, wormwood, and fumitory, the highest. The leached ashes of several kinds of grain, were found, by Ruckert, to be constituted as follows:

	Silica.	*Lime.*	*Alumine.*
Ashes of Wheat,	48	37	15
" Oats,	68	26	6
" Barley,	69	16	15
" Rye,	63	21	16
" Potatoes,	4	66	30
" Red Clover,	37	33	30

Leached ashes are found to be an excellent manure applied to soils that are light, or such as are inclining to be sour; the alkali correcting the acid with which such soils, as the vegetation proves, abound. In some instances, crops of grain, roots, and grass, have been nearly doubled by their use; and no skilful agriculturist permits their waste.

ASPARAGUS. A plant cultivated in gardens, and deservedly esteemed for its value as an article of food, when properly prepared. Its value is also greatly enhanced by the early season at which it is produced. It is the young shoots of the plant, as they attain the height of some four or six inches above the earth, that are used for food, and these are cut slanting upwards, about two inches below the surface. Asparagus is usually grown in beds, and requires a soil very rich and deep, and if not so naturally, it must be made so by trenching and manuring with fine manure or compost, before the plants, which are raised from the seed, are put into it. They may be set in rows eighteen inches distance, and ten inches in the row, or in squares at one foot distance. The beds during the winter are secured from frost, and the plants prepared for an early start, by a covering of straw or litter. The beds must be loosened in the spring, and a coating of mould, saturated with liquid manure, worked in, has been found a capital dressing. A few plants are not cut, but reserved for seed, to keep a supply of the young plants for beds. In a favorable soil, an asparagus bed when established, and properly attended to, will last many years. The plants are usually allowed to stand three years before they are cut; some, however, commence on them the second year. They are boiled and eaten with butter, as are green peas, &c. The asparagus offers a striking instance of the effect produced on plants by cultivation. In some parts of Europe it is found growing wild on the sea shore, its stem not thicker than a goose quill, and only a few inches in height. The cultivated plant is sometimes found three-fourths of an inch in diameter, and grows to six feet in height. In the neighborhood of cities or villages asparagus is cultivated as a source of great profit; and it should find a place in every kitchen garden.

Improvement of our Cattle.

We feel pleasure in giving place to the "Essay on Cattle," written by a gentleman who has not only taken much pains to inform himself fully on the subject of which he treats, but has also added considerable experience to the knowledge so gained. Those who remember the able paper of Mr. R. read before the State Agricultural Society, on the subject of Sheep, and published in the last volume of the Cultivator, will welcome the present paper on a kindred theme.

We agree, in the main, with the opinions of Mr. R. and think the course recommended by him the only one that can be relied on for the improvement of our stock. It is alledged, and with some appearance of truth, that the pure Durhams are rather delicate for our climate and pastures; but a cross between them and our native breeds, would, as experience has shown, give a breed of good form, and hardier qualities.

In the impropriety of going beyond a first cross, we fully agree with Mr. R. Within a few years, the public attention abroad, particularly in Scotland, has been turned to the effect of proceeding beyond a first cross in breeding, and the result is, that the practice has received the most unequivocal condemnation. At the last meeting of the Scotch Highland Agricultural Society, embracing the most skilful and influential breeders of the country, there seemed be but one opinion on this point; and that was decidedly against the practice. Our whole observation and experience, goes to confirm us in the correctness of this opinion; and while we would strenuously urge upon farmers the necessity of improving their stock, we would insist on the fallacy of supposing such a result is to ensue from breeding from the first, second, or third cross, alone. The progeny in these cases *may* be good, but cannot be counted upon with any certainty. They are more likely to show the bad qualities, than the good ones, of their respective races; and experience has shown that to breed in this way, will surely deteriorate any breed or breeds. On our flocks and our herds much is depending. So far as animals are concerned, our sources of wealth are confined to cattle, sheep, horses, and swine; and the means of improving these should be watched with a corresponding care and anxiety.

Iron Manufacture.

There are few branches of the arts so closely connected with the progress of agriculture, as the making of iron, and any measures that shall facilitate the manufacture, or increase the quantity, will in the same ratio add to the means of improvement in the cultivation of the soil. One of the most serious inconveniences the American farmer has to encounter, is the want of the proper implements, and this want is in the main occasioned by the prices and scarcity of iron in the country a want not experienced in foreign countries, as the extent to which iron is used in the construction of their implements fully proves.

That there is no part of the world more rich in iron ores than the United States, particularly some parts of New-York, New-Jersey and Pennsylvania, is well known to those who have paid attention to the geological researches that have been made in these states; and in Pennsylvania these ores are in the immediate vicinity of the most extensive and easily worked coal mines on the globe. The cost of charcoal has hitherto prevented the use of these ores, except in a very limited manner, and until the past year, all efforts to use the anthracite or mineral coal in their reduction has proved abortive. Mr. Crane had, after many trials, established an anthracite furnace in Wales, and Mr. Perry of Pennsylvania,

visiting the works, conceived that improvements might be made, that would obviate most of the difficulties experienced by Mr. Crane, and we are happy to learn from the Miner's Journal, that he has been completely successful; his new furnace, worked wholly by anthracite coal, turning out from thirty-five to forty tons of good iron per week. As both the quantities of ore and coal in that region are apparently limitless, we can see no reason why iron to any desirable extent may not be produced, and thus our country relieved from one of its great sources of foreign dependence. The introduction of air, heated by passing through red hot iron tubes to a temperature that melts lead exposed to the current, instead of the cold air blast, was a great improvement in the making of iron, but so far as this country is concerned it will not produce the effect of the anthracite furnace.

When we look at the immense quantities of iron required in this country annually, for agricultural purposes, for rail-roads, and the various uses to which it is applied in the manufactures and arts, this discovery will be viewed as justly a very important one. Illinois alone, has lately ordered 500,000 dollars worth of iron from Great Britain, for her rail-roads, and many times this amount will continue to be required for this use alone, in the public works of the states. We shall be gratified if any considerable part of this money can be kept at home.

Items from our Note-Book, No. 2.

Butter in Winter.

We find the following in the Yankee Farmer, and can recommend the practice, noticed in it, to the adoption of those who dislike butter of the color of lard. We have tried the carrot, and know it will perform what is here promised. An excess of carrot in the milk, would probably produce a bad taste in the butter.

"When cows are not fed on roots or other succulent food in winter, the cream generally produces butter of a light color, which greatly lessens the value of the article for the market. As the juice of carrots was recommended for giving a good color to butter, we made the experiment, supposing that it would be merely a matter of disguise, by improving its appearance, and injuring its flavor; but, to our surprise, we found that the carrot juice not only improved the appearance of the butter, but added to its quality, by rendering it more sweet, rich, and of a finer flavor. There was no taste of the carrot in the butter. It may be that butter, colored in this way, will not keep as well in hot weather, but this can be no objection to the making of winter butter, which is usually consumed in a short time. Altringham, Long Orange, or any other rich yellow carrots, are good for improving butter. Wash them clean, then grate them fine, and cover them with new milk; after they have stood ten or fifteen minutes, put them into a cloth, and squeeze the juice into the cream. Use one carrot, of middling size, to cream enough for two pounds of butter."

Mad Itch.

In a late number of the Cultivator, there appeared a communication from Mr. Harvey Dewey, of Indiana, describing a disease which was very prevalent, and very fatal among cattle in the west, and which was known by the above name; and requesting, if any cure should be discovered, it might be communicated for the benefit of the public. We copy, for the information of all interested, the following, communicated to the Sangamo Journal:

"The undersigned takes this method to inform the farmers, and others who raise cattle, that he has discovered a cure for the mad itch; a disease which is often fatally destructive to that species of stock. Last winter was two years, when I had four cows attacked with the above complaint, and I tried every thing I heard of, to cure them, but with no good effect. This winter another of my cows took the same disease, which I discovered early one morning. And as soon as I discovered it, I gave her as much salt and soot as she would lick, and a few hours after, I gave her from three-fourths of a pound to a pound of pulverized brimstone. In the morning following, I gave her as much salts. The cow is now well, and as hearty as any of my cattle. It is my opinion that sulphur itself will cure, or sulphur and salts given in the way prescribed. The cure was effected in about a week. The remedy operates severely, for two or three days, as a purge on the animal.

"To those who are not acquainted with this disorder, I will inform them, that it first comes on with a kind of hiccough or jerk, at every breath. The brute jerks itself full of wind; frequently licking their sides and back, occasionally rubbing their heads; and if not stopped in five or six hours, they rub with apparent madness, and continue to swell until death takes place, which will be within ten or twelve hours after the attack. This cure is from experience, and I give it for the good of my fellow citizens.

"David Simms."

Sugar Beet.

This root promises to become a general favorite, as, independent of its value in the manufacture of sugar, (of which the possibility and profit, in this country, will be pretty fully tested this season,) it is found that for the purposes of feeding, it has few rivals. It is, besides, on favorable soils, very productive; 600 or 700 bushels being not an uncommon yield. In the vicinity of Philadelphia, and in other places, it has been extensively used in feeding sheep—making mutton of the first quality. For milch-cows, experience shows it is exceeded by nothing, except the carrot; and the following extract from a letter written by Mr. J. R. Caldwell, of New-Windsor, Otsego county, shows they are equally good for pigs:

"I feel much indebted to agricultural publications for the instructions and recommendations laid down in them, particularly on the cultivation of roots. I have this year 1,100 bushels of ruta baga; 200 bushels of sugar beet; 800 bushels of potatoes; and an acre of cabbages, which have afforded, and which still afford a great deal of the best food for milch-cows. *My hogs, (Berkshires) are very fond of the sugar beet, on which they are fed, and thrive well on them.*"

Buckwheat Straw.

"A writer in the Farmer and Gardener, says that buckwheat straw is better for milch-cows than the best timothy hay, and that they eat it with avidity. But, in order to realize the above strong assertion, it is necessary that the straw be preserved by salting, housing or stacking, from the deteriorating influence of rain, &c."—*Practical Farmer.*

The value of buckwheat straw, we are confident, has been greatly underrated. If cut as soon as the seed is fit for cutting, and well cured, or threshed, and stacked while not cured, with layers of dry pea, oat, or wheat straw, it will be found an excellent food for cattle or sheep, and one which they will prefer to almost any other. A friend of ours, who raised a fine crop of buckwheat last season, threshed it in the field, and stacked it with alternate layers of dry pea straw. At this stack, he fed 100 of his sheep, and another hundred on good hay. He assured us that the sheep ate the buckwheat straw with the greatest avidity, and continued to improve so long as it lasted, but had sensibly fallen away, when allowed the pea straw and plenty of good hay. Those fed on the buckwheat, were superior in their keep, in all respects, to those fed on the hay. The buckwheat crop is a valuable one for the seed alone; it may be made still more so, by the preservation and use of the straw.

Le Conteur on Wheat.

No individual living, has made as many experiments with wheat, has done as much to determine the qualities and worth of the many varieties of this plant, or has so well shown its habits, and the soil required for its production in perfection, as Le Conteur of the Isle of Jersey. His essay on the several topics, connected with the management of the wheat crop, is of great value to the practical as well as scientific farmer; as showing some of the many results he arrived at, in the course of his investigations. He says:

"It is perfectly true, however we may account for it, that all plants become tired of one soil, and one manure. They, like the human race, have their appetites and loathings, and a person that would be forced constantly to eat the same kind of food, would not only infallibly sicken of it, but would, most likely, suffer in his health. So it is with the cultivation of wheat, or any other plant. The best cultivator of Lucerne I have ever known, whose practice extended over forty years experience, assured me, that until he adopted the mode of giving the plant fresh food yearly, he was never able to make it produce as he has since done. One year it was dressed with decomposed manure; the next, with ashes; the third, with salt; and the fourth with lime. I have applied this principle, and this system, to wheat. That which is grown on land manured from the mixon or dung heap one year, becomes seed for land prepared with lime; that again becomes seed for land dressed with ashes; then for land dressed with mixed manures, and so on. Vary the food or stimulants of the wheat plant, as much as possible, hence, giving a good variety every chance of finding a new soil, on each occasion, or sowing."

Churning Butter.

Every good housewife knows that at times, from some peculiar causes, most generally extra sourness or bitterness of the cream, much difficulty is experienced in making the cream into butter. A lady writer in the Indiana Farmer, recommends the following course in such cases. We have for years used soda, or saleratus, for the same purpose, and found them usually successful:

"I wish to inform my sister butter makers of the means I used, which so successfully removed the difficulty. I churned perhaps three hours, to no purpose, and then tried to think of something that I had read in the Indiana Farmer, or some other periodical. I could not remember precisely, but I recollected the reason stated, was the cream being too sour. I then thought of soda, (pearl ash I presumed would do as well) and dissolved a large tea spoonful in a pint of warm water, and as I poured it in, churning at the same time, it changed in a moment, and gradually formed into a beautiful solid lump of sweet butter."

Hybrid Plants.

Few species or families of plants show such a disposition to intermix, and consequently to degenerate, as those of the Cucurbitæ, or melons, squashes, pumpkins, &c. and great care is necessary, where such vegetables are grown for seed, or for the market, to prevent such a result. When squashes, pumpkins, and water-melons are planted in the vicinity of each other, they are sure to intermix in such a manner that no dependence can be placed on the seeds for producing plants like the original one. Last year (1838) we planted on a piece of ground, containing only a few square rods, the common pumpkin, the seven year pumpkin, the Valparaiso, acorn, and crook-neck squashes, and a few hills of water and mush-melons. From the seeds of the two finest Valparaiso and acorn squashes, we have this year (1839) grown no less than five different varieties of squashes, which are evidently hybrids, or crosses of the different sorts that were planted on the piece of ground alluded to. This is clear, not only from the color and shape of the vegetables, but also from their taste and quality, which with a single exception, are inferior to the original ones. In this case, from the number of varieties planted together, it was difficult to determine which kind predominated, or was the most effectual in determining the character of the seeds; still it was sufficient to prove that the utmost care should be taken to prevent such mixtures from taking place.

No where have the effects of these changes or crosses in deteriorating vegetables, been more apparent, than in the melon markets of our principal cities, particularly New-York and Philadelphia. Some of the varieties that when first introduced were highly esteemed, have become worthless; and the progress of deterioration is plainly seen on others. The long striped water-melon of Long-Island and New-Jersey has been one of the most delicious of fruits; but a kind of citron, unfit for eating, but in great demand for preserves, has been planted with, or near it, until it has been seriously injured. The water-melon has become hard, and has lost much of its original flavor, while it has acquired, to many individuals at least, the disagreeable odor of the citron melon. Gardeners and seedsmen should pay particular attention to this point, and by planting varieties liable to intermix, at great distances, avoid a result which threatens to deprive us of some of our most valuable fruits.

Sound Advice.

The fault alluded to in the following, which we copy from an English agricultural work, is not by any means confined to that country; and the corrective recommended, will be found as valuable here as there. It is high time the farmer understood that for success he must depend, under providence, on himself, and that reliance on any government for the relief of his wants, is to rely on a broken reed.

"Every calm and thinking man must own, that the greatest fault at the present day in the English agriculturist, is the looking to or trusting to government, rather than each man to his own foresight and labor. We would assure our brethren of the plow, that it is not in the power of any government to bolster up the state of agriculture. A wise and good government will not enact laws prejudicial to any part of the community, and they may be assured that it is not *forcing* wheat to be sold at a sovereign a bushel, or meat at five shillings per pound, that will ever make the agriculture of the country prosper, or the farmer rich. Is it by the manufacturer selling his prints at a sovereign per yard, that he has amassed a fortune? *No—it is the greatest quantity produced at the cheapest rate*, that makes a prosperous trade. If wheat is low in price, let the farmer bestir himself. Instead of setting whole evenings, (as many an English farmer does) soaking over a cup of cider, or a drop of home brewed, while he grumbles, and spells the columns of an old newspaper, and abuses the government for the 'great cry and little wool' in the way of help in the agricultural distress, let him toss aside the speeches of our would be patriots, and let him to the fields and his herds, and see if all be right there. Let him remember that if he can grow one or two quarters more per acre, he will be in a better position even with low prices, than he was before."

Cost of Fences.

"In a paper in the New-England Farmer, a few years since, Mr. Shurtleff estimated the cost of several kinds of fences, (and they were taken from his own experiments,) as follows:—

White cedar fence, made of posts and rails, five rails in height, three lengths to two rods nearly, cost 91 cents a rod.

White pine rails sawed two inches by eight, and chesnut posts, four rails high, three lengths to two rods nearly, cost 64 cents a rod. In both these instances the cost was exclusive of the setting.

Good four and a half feet stone wall varied from $1 to $2,50 a rod, according to the ease with which the stone could be procured, and the manner in which it was laid, whether by trenching or otherwise.

Hedge fences, made of Virginia thorn plants, (*Crategus cordata,*) set twenty-one to a rod, cost at the end of the fourth year, including planting, trimming, &c. 40 cents a rod: and this agrees very well with the estimate made by Mr. Kirk, of Brandywine, Delaware, who has had more experience in hedge making, than almost any other man in the United States."

Fencing materials are becoming daily more scarce in large sections of our country, and the best methods of constructing fences is becoming yearly a question of greater importance. A common rail, or post and rail, or post and board fence, will not, on an average, last over fifteen years, the rails decaying, or the posts rotting off at the ground. Red cedar, or yellow locust posts, would be more desirable, but they are with difficulty obtained, and cannot be calculated on by the common farmer for fence. We have found by considerable experience with the white cedar or cypress, that, for posts, sticks of considerable size are preferable, their durability apparently increasing in proportion to their thickness. And where gates are to be attached, or in other positions where renewal will be difficult, posts of eighteen or twenty inches in diameter will be found the cheapest in the end. Timely provision for suitable fencing materials, is one of the things which no farmer can neglect with impunity.

REMOVAL.

The office of the Cultivator will be removed early in this month, from Washington-street, to room No. 7, (second floor) of the New Exchange, corner of State and Market-streets.

Cultivator No. 12, vol. 6.

But a part of the subscribers to vol. 6, of the Cultivator, have as yet been supplied with the last number of the volume, owing to the delay occasioned by the copper-plate printers, who are executing the portrait of the late Judge Buel. The subscribers will be supplied as fast as the portraits can be procured.

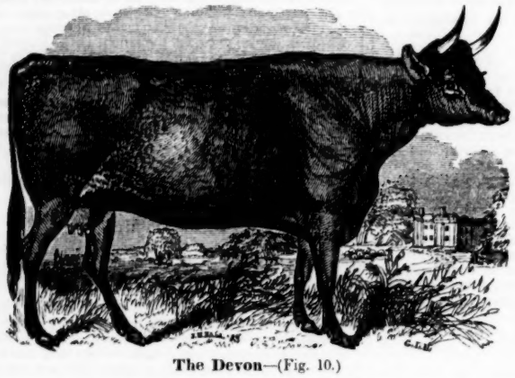
Communications.

ESSAY ON CATTLE.

The Domestic ox, is not, as is well known, indigenous to America; but was introduced here by our European ancestors in the beginning of the 17th century. An attempt has been made to trace the origin of our common cattle, especially those of the northern states, exclusively to the English Devon; and it is probable that it did mingle largely in the early importations, from the fact that a large portion of the colonists were from the south of England, or embarked from ports in that district, where the Devon at that period was the prevailing breed. The characteristics of this variety also, as to horns, color, etc., have always been the favorite ones among the people of the United States. But at the time of the settlement of America, little attention, comparatively speaking, was paid to breeds, or purity of blood, and it is altogether incredible that the emigrants, to whose number almost every port in England and probably in the United Kingdom, furnished its quota, should have been at the pains to procure the Devons. To say nothing of the preferences which each would naturally have felt for the cattle of his own district, it would argue a degree of care and solicitude on a subject, then deemed of little importance, altogether incompatible with the character and motives of the men who colonized the new world. Many of them probably were scarcely aware that there was such a breed in existence! Besides, the Dutch in New-York, and the Swedes on the Delaware, introduced the cattle of their respective countries, which were subsequently incorporated with the common stock. Although, as we have before remarked, the Devon characteristics prevail, the practiced eye will readily detect traces of this varied lineage. Few or none of our common stock equal the North Devon, in the finish and beauty of their proportions, more generally perhaps resembling the coarser Sussex ox;* and our cows are better milkers. Our black polled cattle give indications of their Welsh and Galloway extraction, and it is but a few years since, on the Mohawk and Hudson rivers, there existed undoubted remnants of the stock imported by the Dutch settlers from Holland.

To speak of the merits of a race so varied, as a whole, would evidently be preposterous. Selections may be readily made from our common cattle, combining very considerable excellence for the dairy, the yoke, and the shambles; while another and a larger portion are destitute in a part or the whole of these qualifications. Their value to cross with the improved breeds, will be hereafter adverted to.

We shall proceed now to consider the breeds of later introduction, imported with the view of improving the common stock. These are the Devons, Herefords, New Leicesters, Ayrshires, Alderneys, and the Short Horn family, consisting of the "Improved Short Horn," or Durham, the Teeswater, Holderness, and a thick, heavy buttocked variety of Yorkshire cattle, which have provincially obtained the name of "Devonshires."



The Devon—(Fig. 10.)

In symmetry and beauty of proportion, the high bred Devon scarcely acknowledges an equal. His delicate limbs, deep red color, beautifully tapering horns, high and spirited action, united with docility in the yoke, and a show of blood, falling little short of that of the thorough bred horse, have always rendered him a favorite with breeders of taste, in his native country. Favorable specimens of them were introduced into the United States in 1817, from the herd of the Earl of Leicester, (then Mr. Coke.) Notwithstanding his many excellencies, it cannot be said that the introduction of the Devon was attended with any striking benefits. Singularly suited, by his rapid gait for the plow, on the light lands of Norfolk, and some other parts of England, his peculiar excellence, his activity, has been found to avail him little on the more generally tenacious soils of the United States. In strength, the Devon ranks only in the fourth or fifth class of British oxen. The cross with our common cattle produced an animal somewhat improved from the latter in his points, but with no great additional value for the yoke, and decidedly inferior for the dairy. Yet a slight admixture of Devon blood, has been thought advantageous in modifying the coarseness of heavy, bony breeds, like the Holderness, and it has ever been strenuously advocated as a cross with the Improved Short Horn, by distinguished English breeders. But others object that the Durham gains nothing by the admixture in his propensity to take on flesh and fat; while size and milking properties are sensibly diminished. This was decidedly the opinion of Col. Powell, who instituted numerous experiments. The variety thus produced would doubtless be capable of enduring a shortness of keep, incompatible with the superior size of the pure Short Horn, and thus be better adapted to high and less fertile lands; but there are other breeds which as a cross with the Short Horn, would be as well calculated to attain this end, without so great a sacrifice of milking properties. The portrait above (fig. 10,) is that of a Devon cow, owned by Mr. Western, which we copy from the Farmers' Series.

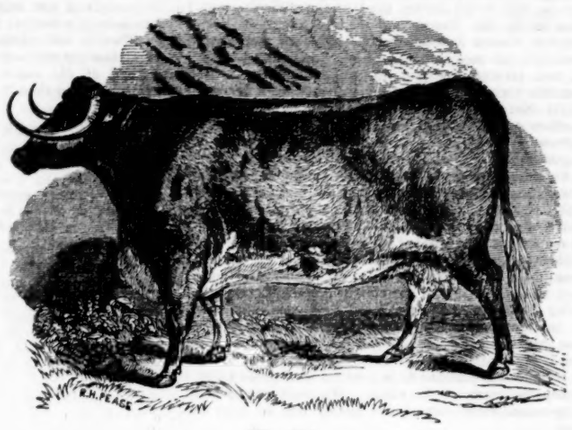
The Hereford.

The Hereford ox is supposed to be descended from the same stock with the Devon, but is larger, heavier in the bone, usually of a darker red or brown color, with a white face, throat and belly. They are shorter legged than the Devon, hardier, and kindlier feeders, but less docile in temper, and even worse milkers. Indeed, a Hereford cow is rarely seen in an English dairy. Their hardihood and great muscular power give them the first rank among working cattle. This, together with their superior grazing qualities, has led to their introduction into the United States, by the Hon. Mr. Clay, of Kentucky, and several other individuals. But it is probable that their deficiency in milking properties will always prevent their very general adoption, either as a cross, or in a pure state.

The New Leicester—(Fig 11.)

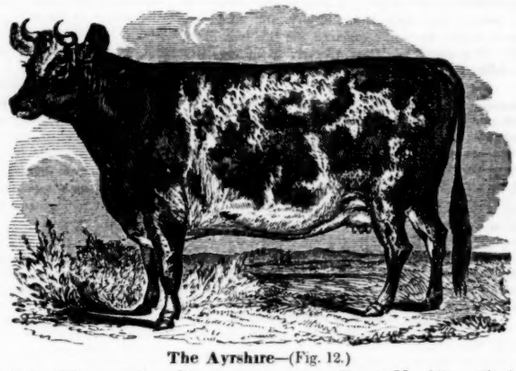
This breed, spoke into existence as it were, by the commanding genius of Bakewell, were derived from the original Long Horns, of the midland and north-western

* The smaller variety of the old Sussex oxen.



[Fig. 11.]

counties of England. The Lancashire or Craven, as this original variety is generally denominated, were characterized, at least the better portion of them, by their length and roundness of carcass, and by giving peculiarly rich milk, though in moderate quantities. They were large, coarse boned, but possessing a considerable, and sometimes a marked tendency to fatten. A smaller variety of the same breed, generally inhabiting mountain and moor lands, according to Mr. Youatt, gave milk as superior in quantity and quality. Out of these materials Bakewell formed the New Leicesters, which for aptitude to acquire external fat and early maturity, became almost unrivalled. He reduced the size, and especially the bone of the old Long Horns, and under his molding hand, the new variety reached a finish and beauty unknown in any other breed of the day. This is strikingly shown in the above portrait, (fig. 11,) from Garrard's Views of British Oxen. Unfortunately, however, milking properties were, to a considerable extent, sacrificed by him. The Leicesters, or "Shakspeares," as they are more usually styled in the United States,* were of different colors, but more generally red, with finch or "lined" backs, as they are termed, in this country. Long, slim, tapering horns, projecting forward and downward, and turning up at the points—sometimes falling down the sides of the head in a curve, the points nearly meeting in front, is also characteristic of the race. The New Leicesters, owing to that cardinal defect in Bakewell's system, breeding from too close affinities, and to the appearance of a rival in the improved Short Horns, destined to sweep away all opposition, have nearly disappeared; but grades between them, and the old Long Horns are still cherished by many of the midland dairies of England. A cross between them and the Short Horn are still more common, and answer excellently for the purposes of the butter dairy. The milk of the Short Horn is improved in quality, though diminished considerably in amount, and the cross bred animals are supposed to be peculiarly hardy and unsubject to disease. Long Horns of various grades between the old Lancashire and the improved Leicester, have at various periods, been introduced into the United States, and specimens of them, crossed with the Durham, (with no admixture of other blood,) exist in this and one or two neighboring counties. They are a beautiful breed, possessing much of the substance of the Short Horn, with the peculiar fineness in the forend, characteristic of the New Leicester. Some of them are exceedingly delicate handlers, with thick, silky coats, and are rich, though not uncommonly deep milkers.



The Ayrshire—(Fig. 12.)

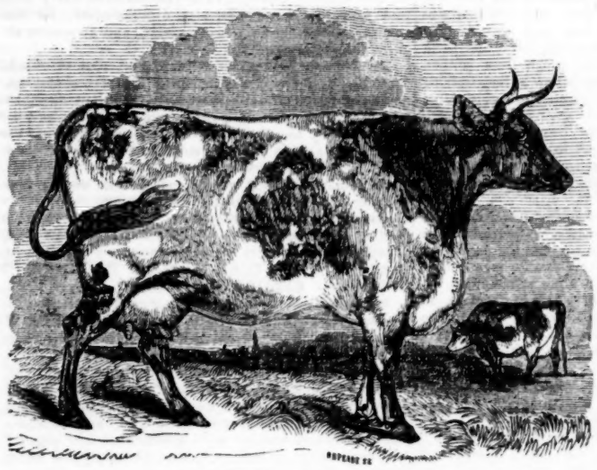
It is but a little more than fifty years since, according to Mr. Aiton, (the best authority on the subject,) the Ayrshire cows were "of diminutive size, ill-fed, ill-shaped, and they yielded but a scanty return of milk; * * * the chine of their backs stood up high and narrow, their sides were lank and short, their hides thick and adhering to their bones, and their pile coarse and open." In short, there can be but little doubt that they would gain nothing by comparison with the most ordinary American cows. We had adverted particularly to their then condition, because in following them up to their present high degree of excellence, we find a lesson fraught with peculiar value to the American farmer. Our breeders have certainly as good, or a better breed on which to commence their improvements, and the ameliorating crosses which made the Ayrshire cow what she is, are equally within our reach.—Though from the length of time which has elapsed, and the imperfect record, or rather the absence of all record, which is too generally kept of such transactions, little is known of the progressive steps attending the cross, and though there are some who seem disposed to call in question the fact, whether it ever took place, it is generally conceded that the present celebrated race were produced by a judicious admixture between the original cow of Cunningham, Kyle, and Ayrshire, (Mr. Aiton's description of which we have already quoted,) and some of the earlier Short Horns, from the banks of the Tees. The benefits attending the cross were accelerated, and no doubt much heightened by the moist, mild climate, and rich herbage of that district of Scotland where the Ayrshires principally prevail; pronounced by Mr. Youatt, "the finest dairy county in Scotland, and equal perhaps to any in Great Britain." This improved race is of a red and white color, beautifully mottled,

* Probably from Mr. Forsbus' "Shakspeare," the most successful stock-getter of the L. H. breed.

short in the leg, the horns small and fine, the head and neck delicate, the latter thickening properly toward the shoulders, the carcass deep but inclining to be flat, and the loin and haunch, compared with the Short Horn, narrow. The accompanying portrait, (fig. 12,) gives a favorable idea of one of the cows. Five gallons of milk daily, for two or three months, after calving, three gallons for the next three months, and one gallon and a half for the remaining four months, in which she is milked, is stated as the *average* amount given by the Ayrshire cow.* As a milker, she of course, yields to the larger Short Horn, nor will she take on an equal amount of flesh and fat, on the richer soils of England; and on the bleak and heathery hills of Scotland, the various breeds of black cattle would thrive and fatten where the Ayrshire would scarcely obtain a subsistence. But on medium soils, there is perhaps no breed, size and the consumption of food being considered, which presents a much better combination of milking and grazing qualities. Of their value as working oxen, our authorities are silent, and we do not know that any experiments have been instituted among the few imported into the United States. If they are good in this respect, such a breed would be a desideratum in many portions of our country. But as we have before hinted, we believe this desideratum can be supplied more easily and cheaply by materials within our reach. This point will be discussed in its proper place.

The Alderney.

This small breed of French cattle, are fashionable in the parks and pleasure grounds of English gentlemen, on account of their diminutive size, and the peculiar richness of their milk. Col. Powell, after fifteen years experience with them, pronounces them, in his somewhat summary way, "an unthrifty, dwarfish, savage breed;" and Parkinson remarks, "they are of as bad a form as can possibly be described." Their appetite is voracious; an Alderney cow consuming nearly as much as a Short Horn, which is three times her size.† Some of them have been imported into our country, but probably with no very great general advantage.



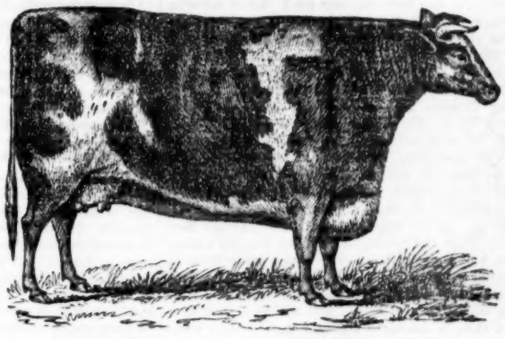
The Holderness.—(Fig. 13.)

Sometime during the 18th century, Short Horned Cattle were introduced into the north-eastern counties of England, from the adjacent continent. They are indiscriminately termed *Yorkshire* or *Holderness* cattle, by the early writers; the former name derived from that of the county where they first began extensively to prevail; the latter from a town in the same county, where either they were originally introduced, or where, as tradition runs, certain improvements in the breed were first attempted. They subsequently, as we shall see, attained the name of Teeswater, and finally of Durham, or "Improved Short Horn."

Marshall describes the original Holderness as "thin quartered, too light behind and too coarse before, large shoulders, coarse necks and deep dewlaps." Lawrence, after passing a high encomium on a selection which might be made from them, describes the remainder as "long, gaunt, deep carcasses, without adequate substance, placed on high stilts, of the coarsest timber, slow feeders," &c. They were also, by the consent of all the English writers on the subject, thin skinned, inclined to be tender constitutioned, bad provers, their flesh coarse and often dark or "liery." In one particular, however, they were from the first pre-eminent, namely, in the amount of milk given by them, though it was not of so rich a quality as that yielded by some other breeds. In York, Durham, and the adjacent counties, over which this breed rapidly spread itself, early attempts were made to improve the form, without sacrificing their milking properties. Marshall gives a singular account of one of these efforts. After describing the Holderness, as we have already quoted, he says:—"This, from being found disadvantageous to the butcher, * * * * the breeder attempted to enlarge the hind quarters; and had he stopped when he got to the happy medium, he would have wrought a good work; but the fashion was set—cloddy bullocks were in estimation. The first variety of this species of cattle, which I can recollect, was a thick, large boned, coarse, clumsy animal; remarkably large behind, with thick, gummy thighs; always fleshy, but never fat, and the flesh being of a bad quality. This, however, was not the worst: the monstrous size of the buttocks of the calf was frequently fatal to the cow. * * * * They were probably the worst breed the vale ever knew." We have here an exact description of a variety existing in many parts of our own country, known popularly in this, and some of the adjacent counties, as "Devonshires," though their horns, to say nothing of their posterial deformity, proves this to be an entire misnomer. From the singular projection behind, they are commonly known also as "Pumpkin rumps;" and although large and rather showy, they are certainly the worst breed in the United States. The picture given above, (fig. 13.) is that of a Holderness or Teeswater cow, crossed with the Improved Short Horn.

The Teeswater.

In more judicious hands the Short Horns rapidly improved. Among the spirited breeders, on the banks of the Tees, (which divides York and Durham,) they rapidly assumed a distinctive character; shorter legged, more compact, the milk but slightly diminished, and this more than counterbalanced by its increased good quality,—better feeders, hardier, carrying more fat, and their flesh more marbled and finer in grain. This signal improvement was effected, it is generally supposed, by a system of judicious crosses. An importation of cows from Holland, is usually referred to as one of these, and Mr. Berry conjectures the wild white breed of England to have furnished another. Hence the strong admixture of white in the Teeswater and the Durham. The improved variety, denominated indiscriminately, Teeswater or Holderness, immediately became the general favorite in the large metropolitan dairies and milk establishments. For milking properties, and when no longer used for that purpose, aptitude to take on flesh, England had never possessed so valuable a breed.



The Durham, or Improved Short Horn.—(Fig. 14.)

At this epoch, and with such materials, Mr. Charles Colling commenced his career as a breeder. His wonderful success has been ascribed by some, to chance; but the Rev. Henry Berry, the best possible authority on this subject, thinks otherwise. He pronounces it the result of "a deliberate and well considered plan." Mr. Colling found the Teeswater yet possessing some of the faults of the old Short Horns. From their overgrown size, they were too frequently coarsely and loosely formed, and they were yet entirely inferior to what the Durhams afterwards became, in aptitude to fatten and early maturity. Mr. Colling was remarkably favored in his efforts to counteract these defects, by the possession of the bull "Hubback," the great ancestor of the improved race. He was smaller than the Teeswater, while "his flesh, hide and hair," Mr. Berry remarks, "were seldom equalled." On account of his remarkable disposition to take on flesh, he soon became useless. The same qualities marked his dam. It is unnecessary for us, at this time, to follow the progressive steps which marked the onward career of the Improved Short Horns. While it is admitted that in the hands of some breeders whose attention has been turned exclusively to the carcass, their milking properties have deteriorated, it is well known that in other hands, they have fully maintained their equality with the Teeswaters as milkers, while in early maturity, kindly feeding, proof and quality of flesh, they decidedly surpass them. In early maturity they have, confessedly, no rivals, being ready for the butcher from two to four years earlier than the other English breeds.* It is not wonderful that a race, presenting such a rare combination of excellencies, should soon become the favorite of the English breeders. The Long Horns have disappeared before them, or been merged in them by repeated crosses in the northern and midland counties, while in the south they are rapidly superseding the Hereford and the Devon. They have been engrafted on the Holderness Short Horns of the city milk establishments almost universally, and with manifest advantage. The produce, with milk very slightly diminished, but of increased richness, yield as profitable return in the dairy, while the value of the carcass for the grazier is nearly double in value.

Short Horns, of every variety, from the gaunt, unsightly animals described by Lawrence, to the most finished specimens of the improved family, have been repeatedly imported into the United States. The miserable, heavy buttocked variety, known here provincially, as "Devonshires," we have already adverted to. There are also among us, large and not unsightly Short Horns, probably a modification of the above, poor milkers and bad provers, which are popularly known as "English cattle,"—though they sometimes borrow the name of Teeswater or Durham, to suit the purposes of the seller. They are usually red or brown, with dark muzzles, their horns short, fine and tipped with black. A Holderness bull from North Allerton, on the Arve, was imported from England a few years since, and finally was driven to Oneida county in this State, where he remained until he died. Though a monster in size, and marked with the characteristic defects of the earlier Short Horns in his form, his get, with the best common cows, were valuable as milkers, and not deficient in symmetry. Animals of various degrees of merit, bearing the name of Durhams, but not of pure blood, have also been introduced at various times, on speculation. And finally, pure Improved Short Horns,† in considerable numbers, have been imported by spirited breeders in several of the eastern, northern, and western states.

The most Profitable Breed.

Having thus given a hasty summary of the principal facts which tend to throw light on the main question before us, viz. "*what breed of cattle is most profitable*," we proceed to state our convictions on the subject.

That the common cattle of the country do not possess the greatest attainable combination of excellencies, will readily be admitted. A selection of them present very desirable qualities for the dairy and the yoke; but in feeding properties, and especially in early maturity, they are deficient. A full blooded Durham bullock will go profitably to the butcher, at least two years earlier than the American, a decisive consideration to the grazier: and although the former is the greater consumer, the extra food required by him, will weigh but little against the two or even one year's additional keep of the latter.

But notwithstanding all that may be said for or against them, it is to the *best cross* with selected animals of the common race, feasibility and expense being taken into consideration, that the common American farmer must look for the most profitable breed of cattle. In this proposition we wish to be distinctly understood. We do not intend to assert that the produce of any cross we might thus make, would surpass in value breeds already in existence; but the entire substitution of a foreign variety for our own, presupposes an expenditure of time and funds utterly out of the question.

The question then is, with what breed is this ameliorating change to be effected? On a careful comparison of the characteristic merits and defects of our own cattle, with the corresponding ones of other varieties, we arrive unhesitatingly at the conclusion, that to the pure improved Durham, we must look for the basis of the desired improvement. A cross with the Devon or Hereford, would sacrifice milking properties: the dwarfish and ill-shaped Alderney, is not to be thought of: the Ayrshire or the Long Horn, possess no excellencies that the Durham does not possess in a greater degree: and the Holderness, and the Teeswater Short Horns, compared with the improved race, are as the crude ore to the manufactured and polished metal.

Experience has already proved, that the cross between the Durham and our common race, is a most judicious one, and examples are not wanting of it in our own county. A few years since, a bull, sired by Wye Comet, was introduced into Homer, and his progeny are remarkable for their size, beauty, and milking properties. They are but few, as most of our people at that period, who gave a thought to the subject

* British Cattle, Farmers' Series.

† Farmers' Series.

* Farmers' Series.

† There need be no confusion or uncertainty on the subject of blood, as those possessing animals of the pure, improved family, will, *of course*, be prepared to show their pedigrees in the "Herd Book."

of the improvement of their cattle, and they were not numerous, preferred the cloddy buttocked Yorkshires! Yet, there is perhaps not one of the immediate descendants of this bull, that would not be readily selected out of a large herd of the best common cattle, for its superior beauty of form.

The first cross between choice native cows and the improved Short Horn, has generally resulted equally favorably: indeed, the very beauty of the produce, has tended to prevent further attempts at improvement, by encouraging farmers to breed directly from half and three-quarter bred bulls. They frequently lack little of the beauty of their sires, and their services are to be more cheaply procured. But the characteristics of a variety thus obtained, are not sufficiently stamped upon them in the first, second, or even third or fourth cross, to be perpetuated with any great degree of certainty in their offspring. In the language of the Rev. Henry Berry, "to breed from the produce of a cross *directly among themselves*, will lead to the results which have induced many persons, without due consideration, to believe conclusive against crossing; but to take one cross, and then return and adhere to one breed, will in the course of a few generations, be found to stamp a variety with sufficient certainty."

Repeated experiments have amply demonstrated, that interbreeding between the Durham and our common race, if conducted on the principles advocated by Mr. Berry, viz: by a constant resort to the pure blooded bull, is attended with a decided and manifest improvement of the produce in every successive generation. The bull selected, should be small of his kind; fine in the bone; unusually full in the crops and bosom, and wide in the loin and haunch—points in which the common breed are defective. He should be chosen too, from a family of decidedly good milkers. If the bull is large of his kind, the produce are generally coarse, and marked with the defects which attend great disparity in the size of the sire and dam. The dam should be as good in the points indicated in the bull, as our means of selection admits of: short legged, compact, deep in the girth, and a plentiful and steady milker. We have already alluded to the change effected by the farmers of Ayrshire *on a poorer breed*, by a Short Horn cross; and there can be no good reason why the American farmer, with the same skill and perseverance, may not be equally successful. Indeed there are grade Durhams already among us, which there can be no doubt equal or excel the Ayrshire in every desirable point.

The Durham, as we have before remarked, requires more feed than our small native cattle. This, his superior size, would lead us to expect. But though a greater, he is a more promiscuous consumer, the coarsest quality of hay or straw being readily devoured by him. In England, straw, with a very small allowance of turneps, constitute his exclusive store keep in winter. But to bring this matter to its true test, will the Durham yield as great a return in flesh, fat, or milk, for the amount of food consumed, as any given breed? That he will, repeated experiment, as well as his daily advancing popularity, in a country where there are many varieties greatly excelling our own in aptitude to fatten, and at least equaling them in milking properties, fully attest. The amount of food required by him, therefore, forms no objection to the improved Short Horn, on good soils, either in his pure state, or as a cross with others.

The only question now to be considered is, will the recommended cross, supply us with working cattle? It is asserted on the best authority, that the pure blooded Durham ox, will "work admirably;" and the reason assigned for his not being oftener used for that purpose in his native country, is, that his early maturity renders him too valuable at three, for the butcher, to be retained with profit until four or five, for the yoke. There can be but little doubt, that united with our smaller, but vigorous and active race, a heavy and powerful variety of working cattle will be produced. Those especially fed on upland and less nutritious pastures, whose labor *ought* to compensate for their tardier maturity, with size, feeding properties, and docility, increased by the cross, will lose little, and probably nothing of the activity and hardihood of the common race. To what precise extent interbreeding should be carried, to produce the most valuable breed of working cattle, experience can alone determine. HENRY S. RANDALL.

Cortlandville, January 21, 1840.

Mr. Garbutt's Premiums.

Mr. Jesse Buel—I was highly gratified on seeing the generous patriotism of your much esteemed father, in giving premiums for the improvement and introduction of useful agriculture. Being desirous of knowing the nett profit per acre from our best cultivated farms, and the system pursued in their cultivation, I, through the medium of the May number of the Cultivator, in 1837, offered six premiums amounting to forty-four dollars, for the most profitable farm for three years' cultivation; but did not designate whether the estimate should commence in the spring of 1837 or 1838; and as the season was some advanced before the proposition was made, there might be some difference of opinion as to the time of commencing the experiment. I therefore now state that if some commenced their estimate in 1837, and others in 1838, that they shall each have their premiums if deserving.

It was my intention to have forwarded the money on the first of November to the Editor of the Cultivator, for him to distribute; but the heavy dispensation which deprived you of a father, and our country of a highly valued friend, prevented me from doing so. I now appoint you, and my esteemed friend L. Tucker, judges on the successful competitors, if any there should be, and request that the necessary communications relative thereto be sent for publication in the Cultivator.

As soon as you decide who are the successful individuals, please notify me by letter, for weakness of my eyes has prevented me from perusing even the agricultural journals, and the money shall be forwarded immediately. Yours respectfully,

WILLIAM GARBUTT.

Wheatland, Dec. 10, 1839.

New Imported Boar Prince Regent.

Messrs. Editors—Permit me, through the columns of your widely disseminated journal, to give a description of the recent importation of the young boar Prince Regent. He was farrowed in June last, in the town of Reading, Berkshire county, England, and was the choice from a large lot of pigs, and said by his shipper to be unrelated to any thing before sent out to America, and on this account will prove a valuable cross on the old stock of Berkshires that we at present possess. His characteristics are the same as the best heretofore imported, viz. color black, with the exception of a little flocking of white on the face and along the sides, and three white feet. His face is dished, the head fine, ears upright, and a trifle more pointed than those of Black Warrior. He has more length for his size and age than any boar I have bred from, and yet possesses the same good points in which long hogs are generally so deficient; a strong, slightly crowning back, and thick hams and shoulders. He suffered much from inattention on his voyage over here, but is now in fine thriving order. I am assured that his parents are of a large size, and I have no doubt he will be quite *big hog* enough when grown, to gratify the most cormorant appetites. I shall have a few pigs of his get in June, and a seasonable supply thereafter, as the sows now coming into season are more generally stinted to his *Royal Highness*.

I regret that you have decided against advertisements. To myself they are half the spirit and interest of the paper, and my friends generally express the same sentiments. I hope that you will eventually have encouragement enough to come out with a semi-annual advertising sheet, and then no one can have cause to grumble, for those that dont like to bind it up with the rest of the paper, can let it alone; but, to me, advertisements are of as permanent value as any other part of an agricultural work.

My rule for filling pig orders is, *those first remitting*, take precedence. Address, post paid,

A. B. ALLEN,

Buffalo, Erie County, New-York.

☞ We have received from Mr. Allen, a plan and description of an extensive piggery, built by him last fall, which will be published in the next number of this paper.

Chinese Tree Corn.

Messrs. Gaylord and Tucker—Permit me to say a few words by way of recommending the Chinese Tree Corn. And for fear that some of your readers may come to the conclusion that I have been bribed to come out in its favor, I therefore will barely remark that I was humbugged in the article to the tune of $1. 50, for six ears of this reputed early corn. That it does not possess the good qualities recommended, appears quite evident, and the fact of its being a late variety of corn must have been well known to the person who gave it such an admirable recommendation. Now, as the old woman said, it is an ill wind that blows no where, so we say that it is a poor variety of corn, that possesses no good qualities. I fear that in exposing this splendid humbug, writers have overlooked any good qualities this corn may possess. With me it has not proved an entire failure. I planted on the fifth of May, and a considerable quantity has ripened sufficiently for seed. From information derived from several gentlemen, who have grown it the past season in Ohio, I am inclined to believe it will prove a valuable variety for a more southern latitude. H. Case, Esq. deputy post-master at Buffalo, informs me that he has grown about an acre of it on his farm, in Ohio, the past season, and that he considers it as an invaluable variety for that section of country. From these and other facts that have come under my own observation, I trust Ohio, Michigan, Indiana and Illinois, will derive advantage from the introduction of this corn among them. I therefore have determined that, in every bundle or box of trees or plants, that I shall send west next spring, to put up some of this corn, so that my customers, *nolens volens*, shall have it in their power to make a trial of the same.

I have an early variety of the white flint corn, which very much resembles the Chinese, only that it is about one half the size; I intend the next season to cross these two kinds together; this I shall do by planting the Chinese early, and the other some weeks later, and I am not without hopes, from this product, to obtain a variety of corn which will prove valuable in this climate.

I had intended to have made some remarks on the subject of swine, but this I must defer for the present; however, I would just say to gentlemen passing through Buffalo, fail not to call and take a look into the piggery of A. B. Allen, Esq. and if they do not say that one half of the good qualities of these pigs, over the common breed, has not been told them, then I will acknowledge at once that they have been brought up among fine pigs. However, after all, for a long or a short race, I would bet two to one, on Landpike over Seneca Chief or Black Warrior. B. H.

Buffalo Nursery, January, 1840.

Education of Farmers.

Messrs. Gaylord and Tucker—By your kindness I have already hazarded, before the public, through the Genesee Farmer, the assertions, that our republic must be, both in its character and destiny, what farmers make it, and what they say it shall be; that, as a means of this power, they already possess a greater amount of really useful knowledge, than any other class of the community; that their inducements and facilities for becoming men of sound and extensive knowledge, are greater than those of merchants, lawyers, physicians, clergymen or professors of colleges; that the teachers of our country schools should be practical farmers, who, for a course of years, should make teaching a winter profession, the same schools to be under the charge of ladies during the summer; that nine-tenths of the members of legislatures, and the occupants of other offices, should be practical farmers and mechanics; and that American farmers were called upon, by their duty to themselves, to their country, and to the world, to take their own education and legislation into their own hands.

I will now present, with a word of explanation, one or two subjects, essential in the education of every man and woman, and of course of every farmer; for the double reason that they are essential, and at present almost entirely neglected.

No one can hesitate to acknowledge, that those subjects and those modes of teaching are of the first importance, which exercise most effectually and most harmoniously, the various powers and faculties conferred upon man by his Creator—that to call into action at the same time and on the same subject, the hand, eye, judgment, feelings, imagination, taste, and above all the heart, must be more effectual on any subject, than merely *committing to memory words without meaning*.

Grounded on this self-evident truth, I will venture a motto, alike applicable in the education of every child, whether of a farmer or any other member of the human family, viz: "NATURE BEFORE BOOKS, AND DRAWING BEFORE WRITING."

I present this motto with the greater confidence, as its common sense is corroborated, by the experience of the best schools at present in the world, and by many in ages long gone by. In the Prussian schools, previously to any attention given to reading or letters, children are occupied for six months or a year, in the examination and study of things—objects of nature and art, learning their names, properties, uses and relations. And letters and reading when commenced and pursued, and used almost entirely as aids in extending the knowledge of things—as instruments, not as sources, of knowledge. In so doing, they observe in the work of students, no less than of mechanics, the good old fashion of "*learning tools by their use.*" The result is that about one week only is required for a child to learn to read plain sentences, and that not as an irksome task, but as a delightful exercise; so delightful, that by it, any child will literally *learn himself* to read, also to spell, write and speak correctly, the teacher or parent only answering his questions, or removing the obstacles he may find in his way.

In view of these principles of common sense, corroborated by the experience of the present as of former ages, the first step for giving to education, especially the education of farmers, its proper character and elevation, is to furnish the seventy thousand schools and the two millions of families in our Republic, with "CABINETS OF NATURE AND ART," or collections of minerals, plants, shells, prints, drawings, penmanship, needlework, mechanism, &c. &c. The second step, intimately connected with the first, is the employment of children, by the use of the slate, pencil, paper, scissors, knife, &c. in drawing and otherwise representing the various specimens in their cabinets and the objects of nature and art generally.

These two steps in elementary practical education, are as easy as they are important; as little more is necessary than *permission* for those to take them, who need their benefit. Every child, of his own accord, observes and collects specimens of the works of his Creator, scattered around him. If by any means he can obtain a slate and pencil, paper, or other appropriate instruments, he will be sure to make attempts at imitating or sketching the figures, representations or objects coming under his observation.

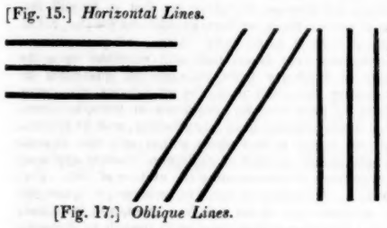
Whatever specimens or instruments are put into the hands of children to aid and encourage their efforts, ought to be, at the outset, few and simple, and of the most elementary character. Fifty well selected labelled specimens, are better than fifty hundred; and a slate and pencil with a graduated foot rule and a right angled triangle, both formed of wood one-sixth of an inch thick, are preferable for beginners, to an extensive case of mathematical or drawing instruments. A pair of dividers or compasses, fitted with a point, pencil and pen, are convenient, and even necessary for the full use of the rule and triangle.

Linear and perspective drawing is important, as one of the first exercises and elements of practical education, not merely for calling into action the hand, eye, judgment, taste, &c. but for its extensive and frequent application by persons in almost every pursuit, and especially by farmers and mechanics; also for its greatly

accelerating the progress of children in all the branches now common in schools. Connected with it, very naturally, and agreeably, are penmanship, (which by the way is but one species of drawing) composition and grammar, or exercises in the study of language, for which thousands and hundreds of thousands in our country have wasted, and much worse than wasted, several years of their precious time, in repeating, several thousand times, "prepositions govern the objective case; I might, could, would, or should have loved; prepositions are words prefixed to nouns to point them out and show how far their signification extends," and dozens of other phrases just as well calculated to give a pupil the "*Art of speaking and writing correctly*," as it would to give an apprentice to a blacksmith the art of axe-making, to repeat for three or seven years, "axes are made of iron, iron is heated in the fire, the fire is blown with the bellows," &c. without once taking into his hand or seeing a bar of iron, hammer, bellows, anvil, or any material or instrument used for making axes. A practice more supremely ridiculous, certainly more entirely abortive and mischievous, can probably not easily be imagined, than repeating the rules and definitions of grammar, or of *parsing*, for the purpose of acquiring the important art, and the elegant accomplishment of speaking and writing correctly. With Lord Kaimes, author of Elements of Criticism, Thomas Dick of Scotland, Rev. Orville Dewey of New-York, and all the intelligent educators, of the Prussian schools, every candid mind must agree that grammar is only the science or theory, and language the art of speaking and writing correctly. Hence, under the floods of grammars with which our country has, for years, been deluged, there is a general and constant bungling in the art of sentence making, while there is much skill, good workmanship, if not perfection, in the arts of making plows, axes, shoes, and various other kinds of mechanism.

A few cuts or figures may show more clearly the uses of linear drawing, both in its connection with other branches of instruction, and its direct application to the business of the farmer. The starting point for beginners is in parallel straight lines, in horizontal vertical and oblique positions, thus:

[Fig. 15.] *Horizontal Lines.*



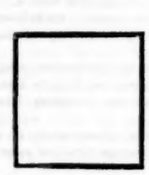
[Fig. 16.] *Vert. Lines.*

[Fig. 17.] *Oblique Lines.*

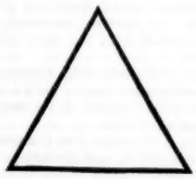
In connection with the drawing of these lines, whether upon the slate or paper, may be a description of their properties and uses, especially by pupils a little advanced, something as follows:

Parallel lines are at the same distance from each other at every point, and are extensively used by farmers, mechanics and scholars. In measuring, dividing, fencing and planting gardens and fields, in erecting houses and all other buildings, in weaving, printing, writing, engineering, surveying, navigation, and nearly every art and science, straight parallel lines are almost constantly used.

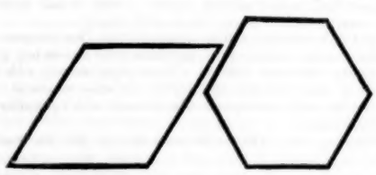
EQUILATERAL FIGURES.



[Fig. 18.] *Square.*



[Fig. 19.] *Equi. Triangle*



[Fig. 20.] *Rhombus.* [Fig. 21.] *Hexagon.*

A square is a four sided figure with all its sides and angles equal. A rhombus has all its sides and its opposite angles equal. All three sided figures are called triangles; those having their three sides equal or of the same length are called equilateral. All six sided figures are called hexagons; when the six sides are all equal, they are equilateral hexagons.

By drawing these and various other geometrical figures upon a slate or paper, or cutting them with scissors or a knife from colored paper, and pasting them into a blank book, a "GEOMETRICAL ALBUM" is formed; the hand, eye, judgment and taste exercised; the mind stored with some of the most useful principles in the whole circle of science, and the application of those principles to agriculture and the mechanic arts illustrated, and the pupil of course amused and instructed.

Sketching various circular figures, also the geometrical solids, such as cubes, cones, cylinders, prisms, pyramids, &c. both from figures on paper, and from the solids themselves, is found to be highly profitable, as one of the first exercises in linear drawing. Delineating also, and at the same time describing various articles of household furniture, agricultural implements, animals, &c. especially from the objects themselves, greatly improves the powers of observing and describing objects, while they furnish the pupil with the laws and the practice of perspective drawing.

Some of the articles referred to are pitchers, lamps, candlesticks, pails, funnels, jugs, bottles, chairs, hammers, axes, spades, plows, rakes, forks, flails, horses, birds, fishes, insects, trees and other plants, machinery, houses, bridges, &c. &c.

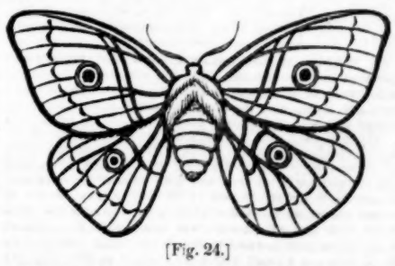
A farm is a school of morals, industry and useful knowledge; for the study of botany, mineralogy, chemistry, entomology and the other sciences, it is among the best schools that ever were or ever can be provided. Farmers are hence the most virtuous, the most useful and the happiest people in the world. How foolish then are young farmers in leaving their farms for the profession of law, medicine or merchandize. Far better would it be for lawyers and merchants to exchange their business for that of the farmer.

[Fig. 22.]

An axe for the forest, a spade for the garden, and the sickle for the wheat-field; and all for adding to the comforts of every person in the community. Those who use them, provide food, clothing, shelters or materials for all other classes, and are hence worthy of the respect of all who eat bread, wear clothes, or live in houses.

[Fig. 23]

In American forests are forty-four different kinds of oak. Several of them grow to the height of eighty or a hundred feet; others grow but eight or ten feet high, and one kind, called the running oak, seldom rises more than twenty inches above the surface of the earth. The white oak is the most useful tree among the oaks, and perhaps the most valuable among all the trees that grow upon the earth. By some of the ancients it was made an object of worship.



[Fig. 24.]

Forty-four thousand different kinds of insects are already known, and many are supposed to exist which have not yet been discovered. Butterflies are among the most curious and beautiful of the insects, and display most strikingly, the wisdom of Him, who created and preserves, not only them, but men and angels.

Most insects exist in three different states, viz: in those of a butterfly, chrysalis, and a worm; by the last, most of the food is consumed, and the great ravages made, in the vegetable kingdom, by which the fruit and hard earnings of many industrious farmers are entirely destroyed. If farmers would study the habits, modes of existence, and powers of insects, they might avoid, in some measure at least, their ravages.

The above drawings and descriptions are given merely as specimens or examples, to show the mode in which this subject may be pursued by children. Almost every child, if encouraged in it, and is furnished with a slate and pencil, and after he has made some progress in his work, with paper and lead pencil, will of his own accord, and nearly or entirely without the aid of a teacher, learn both drawing and writing, and with them of course, spelling and reading. For example, a little boy five or six years of age, having a slate and pencil, and an outline drawing of a bird, entirely of his own accord, attempted an imitation of the drawing, and then wrote in the printed character, birds fly in the air. It was his first attempt at drawing or writing, or at forming characters of any kind, either with a pencil or pen.

By these and kindred exercises, children are now to be found in nearly every part of the country, who have literally *learnt themselves* the arts of writing, spelling, reading and speaking correctly, and with those arts thus acquired, they never fail to acquire a love of *self-improvement*, which secures to them future progress, respectability and usefulness. While the seven years course of repeating "bla, ble, blo, and I might, could, would or should have loved," furnishes children with little more than a strong dislike, if not a disgust, for schools and books, and every thing under the name of study or learning.

Throughout Prussia and other parts of Germany, and in some sections of our own country, every school and every family is furnished with a cabinet of nature and art, and some articles of apparatus; especially a few instruments for drawing, and the figures and elements of practical geometry, which seldom fail to lay a strong foundation for *self-improvement* and substantial character. By these instruments and exercises, the schools in some sections of Pennsylvania, probably now stand the very first among American schools.

Drawing constitutes a *universal language*, by which all the nations of the earth may, and to a great extent do, already hold intercourse with each other. As such it may evidently be used as a most powerful, perhaps *the* most powerful, instrument for diffusing knowledge over the globe, and for the redemption of the human family from ignorance and vice. Already a system of "SCIENTIFIC EXCHANGES," has made great progress among the members and friends of American schools and lyceums, and between them and similar institutions in other parts of the world.

Hundreds, and probably thousands, of young ladies in our country, and many of them the daughters of farmers, who have closed their school education, are now most delightfully and profitably employed in studying and sketching the beauties and wonders of creation, for the double purpose of their own improvement, and aiding in the "*diffusion of knowledge over the globe.*" Specimens, many specimens, have already gone from their hands to nearly every Missionary station in the world, for which other specimens have been received in return. Many Sabbath schools have taken the spirit, and have formed their "*Missionary Cabinets*," and by the aid of drawings, executed by the hands of teachers and pupils, numerous Bible illustrations are prepared for enlivening, extending and enriching the instructions in their own schools; and by sending them abroad, they confer similar advantages to other schools in other states and countries.

As a means of *national defence*, a general system of scientific enterprise and intercourse among the nations of the earth, deserves particular consideration. During the wars of England and France, the scientific men in those countries, interrupted though they might be in their intercourse and co-operation with each other, were entirely preserved, both from the acts and feelings of hostility which convulsed the nations of which they were members.

Suppose that the seventy thousand American schools should enter upon a system of scientific exchanges with similar institutions in England, France and the other nations of the earth, must it not lessen the liabilities to war, and consequently the expense of arsenals, naval ships, and other munitions of war, rendered necessary by a real or supposed danger of national hostilities? But some will say that could not be done. When the question is put to the schools themselves, and their veto is received, such an objection will be in time, but not before.

The subject of drawing, though elementary and essential in the education of every child, and particularly useful to farmers, farmers' wives and daughters, is but one of the many subjects highly important, but entirely neglected, and even discouraged and forbidden, both in schools and families. On some future occasion I may attempt some illustrations in chemistry, as useful to farmers, and entirely within their reach; also geology, botany, entomology, &c. At present I can only add my highest respects and fullest and kindest sympathies for all American farmers, among whom I am proud, by my parentage and life, to claim a place, however humble it may be.

JOSIAH HOLBROOK.

New-York, Dec. 1839.

Report on the Culture of Silk.

BY CHARLES F. DURANT.

To the Cor. Secretary of the American Institute :—

The resolutions of the Kentucky Legislature, transmitted through Hon. C. A. Wickliffe, lieutenant and acting governor of that state, and his excellency the governor of the state of New-York, to the American institute, requesting information on the culture of silk and the sugar-beet, are now before me.

A very limited and mere theoretical knowledge of the manufacture of sugar from the beet, obliges me to decline entering on the discussion of that subject. With the culture of silk I have a practical acquaintance of four or five years, and will cheerfully communicate the result of my experience and observation. The resolutions embrace a very extensive range of inquiry, and refer not only to the production of silk, but also to matters contingent thereto, such as, "Books, pamphlets, and written documents;" "what legislative encouragement has been given, and the effect of such encouragement;" "whether the capital and labor employed have been profitable or otherwise, and any other information on the subject which the governor may deem useful to the legislature or people of Kentucky."

A commentary on the *past* and *prospective* culture of silk in the states, may embrace all the information sought for in the resolutions; and, in this attempt, I would premise that a part must necessarily be drawn from history and tradition.

The silk, known in commerce, is the produce of the "*silk worm*," which Linnæus ranks in the fifth class of animals, and in Lepidoptera or third order of insects—genus *Phalena*—species *Bombyx*—variety *Mori*. It is a native of Asia, where, since a very remote period of time, it has been cultivated for its cocoon of silk, which encloses the chrysalis or middle state of existence.

The silk-worm was introduced into Europe early in the Christian era, and into the North American colonies early in the seventeenth century. Virginia, Georgia, and the Carolinas were the first to engage in the silk culture, and raw silk formed an important integer in the total of their exports, one hundred years ago. Connecticut engaged in the silk culture about the year 1760; and about 1770, the people of all the northern colonies, (middle and eastern states,) generally, were roused to a sense of the importance of silk, in the domestic economy of the country. Dr. Franklin and cotemporaneous writers and philanthropists, urged the importance of a reeling establishment, which was erected at that time in Philadelphia, under the auspices of the "Philosophical Society of Pennsylvania."

In the summer and autumn of 1771, the reeling establishment or "*Filature*," received 2,300 pounds of cocoons, six hundreds pounds of which were reeled for the owners, and 1,700 pounds were purchased by the managers, from the producers in Pennsylvania and New-Jersey. The first-named state furnishing about two-thirds, and the latter about one-third, of the whole quantity.

About ninety individuals furnished the cocoons, and in a list of their names and residences now before me, I find John Etwine, of Northampton county, Pennsylvania, furnished 110 pounds, being the largest quantity from any one person. At that period, and up to 1774, the colonial silk culture attained a rank of much importance—more on account of the large number of philanthropic individuals engaged and determined to persevere in it, than from the amount of silk produced in the aggregate; and it is *probable* that the impetus which the business then received, would, in a few years, under ordinary circumstances, have given it a rank in amount of exports, of still greater importance. But extraordinary circumstances suddenly arrested all advances in the arts of peace. The inherent rights, claimed by the colonies, and disputed by Great Britain, led to open hostilities. The conflict was long, obstinate, and deadly. On the return of peace, in 1783, poverty and a want of the necessaries of life, pervaded the states. Of the former silk culture no vestige remained, except in Connecticut, where, in one county, a little remote from the busy conflict, it continued and still continues to flourish, and increase in magnitude and importance.

Up to 1812, the silk of Connecticut was principally manufactured into sewings. The raw silk, employed for the manufacture of coach lace, tassels, and fringe, was imported at an average cost of about six dollars per pound. The war, between Great Britain and the States, cut off the supplies, and in 1814-15, raw silk rose to thirty dollars per pound. A gentleman of Newark, N. J. at that time employing about twenty hands, in the manufacture of coach lace, informs me that he obtained his supply of "gloss silk" (raw silk, freed from the natural gum) from Mansfield, Connecticut, and the quality, both in strength and lustre, was "much superior to the best imported silk."

Since the peace of 1815, the manufacture of "*Tuscan*" for hats, has materially increased the consumption of raw silk in the States, and the supplies are mostly drawn from abroad; a part coming direct from ports to the eastward of the Cape of Good Hope, and the remainder from the European continent, by the way of England, where it is *not* cultivated, but is manufactured to an amount of many millions of dollars annually.

From the commencement to the first quarter of the present century, occasional articles, through the periodical press, drew the attention of many to the importance of commencing or extending the silk culture. The subject was discussed in the national legislature—a voluminous report made to, and a manual on silk culture, issued by the Congress in 1826. The subject was also discussed in the state legislatures; and Massachusetts, as usual, was among the first to act in this patriotic cause: in 1831, the legislature appropriated six hundred dollars to compile and print a manual on the culture of silk, for distribution in the city of Boston, and in every town in the commonwealth. The work, by order of the governor, was prepared by J. H. Cobb, Esq. of Dedham, Mass.: it is known by the name of "Cobb's Manual," and is published by Carter, Hendee & Co., Boston. As a manual on silk culture, it is, by far, the best that I have seen, and is, intrinsically, worth more than all the other "books and pamphlets" on this subject, that have issued from the European or American press: it treats the subject in a plain, common sense style; is concise; has less than 100 pages 12mo.; contains full and ample information; can be read in one evening, and, from its perusal, all persons of ordinary intelligence, may be fully competent to manage the culture and reeling of silk. The book also contains some *erroneous calculations* on the *profits* of silk culture, and it is to be regretted that a work otherwise so accurate and useful, should have contained such extravagant *over-estimates* of the quantity of silk that can be produced on an acre, and the *profit* to be derived from it: such calculations are, however, mostly quoted by Mr. Cobb, from other authors; and, among them, it is not uncommon to estimate, from an acre of trees, 500 or 600 pounds of silk, an amount at least seven times greater than was ever produced from an English acre, under any circumstances, in any climate or country.

The Massachusetts legislature passed an act, to encourage the silk culture, in 1835, and repealed it, by a new act, in 1836, giving a bounty of ten cents per pound for cocoons, and one dollar per pound for raw silk, made in the state.

The legislature of Connecticut, in 1832, passed an act granting a bounty of one dollar for every 100 mulberry trees transplanted, and fifty cents per pound for all "reeled" (raw silk,) made in the state: this act was repealed in the winter of 1838-9.

Maine, in 1836, by legislative enactments, gives a bounty of five cents per pound for cocoons, and fifty cents per pound for raw silk, made in the state. Vermont gives, by enactment of the legislature, a bounty of ten cents per pound for cocoons; and New-Jersey, in 1836, enacted that, for five years, cocoons raised in the state, should receive a bounty of fifteen cents per pound: the act "excepted bodies corporate and politic," and was repealed the following year.

Acts, similar to the foregoing, were passed by other legislatures about that time, and many stock companies were incorporated for the manufacture of silk. The country was prosperous beyond any former precedent, and, in one year, (1836,) the importations of silk (mostly manufactured goods) amounted to twenty-two millions of dollars; more than two-fold greater than the average importation of the same article, in former years; other circumstances, also, assisted to render the present a very memorable epoch, in the history of silk, in America. The legislative bounties, incorporations of manufacturing companies, and general prosperity, raised up a new branch of the trade, inappropriately named the "*silk business.*" It consisted of the growing, purchasing and selling of mulberry trees; fancy and captivating names were given to new varieties of old species; and individuals and periodicals were urgent in claiming superior excellence for some favorite species or variety. From various causes, the *Morus multicaulis*, (inferior to most all other kinds, for the silk culture,*) took precedence of all others in the "*silk business*," so called. Trees of one year's growth, which could be raised for one or two cents, were sold for one and two dollars each; and the sales amounted to several millions of dollars. To satisfy the demand, many thousand were imported, and like the memorable Holland "tulip business," sales, to the amount of many thousand dollars, were made for trees *to be* delivered in six months or a year. Other species and varieties of mulberry trees, sunk into comparative insignificance: the *Morus alba*, (common white mulberry,) universally esteemed one of the best for feeding silk worms, could not be sold for one cent, or the price of transporting a few miles. The individuals, engaged in the new "silk business," had, generally, little or no connection with the silk culture, and, from a want of information on the subject, may have honestly assisted to increase the demand for some particular kind, of which they had the largest quantity for sale. Most of the purchases were made by persons engaging in the same business, and so extravagant were the estimates of profit, that, for each thousand dollars invested in multicaulis the past spring, even at the then high prices, it was generally supposed that fifty thousand dollars could be realized, by the sale of the increased buds in the autumn of 1839. A mulberry tree, called "*Sharp's* variety," exhibited at the annual fair of the American Institute, in October last, was represented to be a scion of a seedling raised by Mr. Sharp, who sold his interest in one-half of *the* parent tree, for *ten thousand dollars!*

This new "silk business" has probably reached its acme. There is now a sufficient stock of mulberry trees in the states, to supply all the silk culturists on the continents of Europe and America, for the remainder of the nineteenth century; and "silk business men" do not seem to increase in a ratio with trees; for the Morus multicaulis are now offered in great abundance, and find no buyers "at three cents per tree, healthy and well branched." A just estimate of their probable value in the autumn of 1840, I think would not exceed three dollars per cart load; for, on the present decline of the new "silk business," the demand for trees to supply the silk culture, can never be sensibly felt; as no prudent culturist will ever spend more than five or ten dollars, for a full and ample stock of any or every species of mulberry, which will increase in foliage, as fast as he will find hands to gather them, or accommodations for the valuable insect that is to consume them. All philanthropic silk culturists ever have, and still continue to make *presents* of mulberry trees, in sufficient quantities for commencing the silk culture, to all persons who apply for them. I have had no commerce in trees, but have derived much pleasure from contributing, and, at present, am always happy to contribute, *gratis*, one tree of each and every known species of mulberry, to every applicant who is desirous of commencing the culture of silk. Five or six trees, multiplied by cuttings, or layers, will, the first year, produce five or six hundred trees, and be amply sufficient for commencing this useful branch of domestic economy.

The joint stock companies, created within the past eight years, for the manufacture of silk, struggled for a while under the natural burden of difference in price, between the labor of the States and of Europe, and against the unnatural obstructions heaped on by our own government, in taxing the raw material, coming from eastward of the Cape of Good Hope, a duty of ten per cent., while the silk manufacturers of Europe, who obtained much of the raw material from the same source as ourselves, at a cost materially less, were permitted by the "French indemnity treaty," to crowd our market with manufactured silks, free of duty. The result was disastrous to the American silk manufacturers—all, or nearly all, became bankrupt, and ceased operations. The history of a few may serve for a history of the whole.

The "Atlantic Silk Company," at Nantucket, commenced manufacturing with a cash capital of forty thousand dollars, which is all lost, and the company have ceased operations.

The "Valentine Silk Company," at Providence, R. I. lost $20,000 by manufacturing. They have ceased operations, and probably ceased to exist.

The "Poughkeepsie Silk Company" lost all that they risked in manufacturing; and their large, four story building, erected for that purpose, is now rented to others, for the manufacture of pins, buttons and carpets.

The "Northampton Silk Company," at Northampton, Massachusetts, commenced operations with a cash capital of eighty thousand dollars. They injudiciously added to their manufactures, the culture of silk, which they have since abandoned, and which never can be profitably conducted by incorporated companies, with high salaried agents. They also went largely into the new

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* We must beg leave to dissent from the opinion here expressed by Mr. Durant, respecting the inferiority of the Morus multicaulis for making silk; certainly until some evidence is adduced to prove that such is the fact. We take it for granted, that none of the late varieties of the tropical mulberries, introduced into this country, will endure our northern winters: all will need protection in the latitude of Boston and Albany—hence the question to the silk grower, (not the tree grower,) is, which will produce the earliest foliage, and which the greatest quantities, from trees planted every spring, as all these varieties must be. In the middle or southern states, of course, the matter is different. Now, we have the most conclusive evidence, that silk to any extent, may be made from the multicaulis planted in the spring, while there is yet no evidence, that it can be so produced from the other varieties. We do not say it cannot; but the evidence has not yet been furnished. Some of our readers may not be aware of what has been already done the past season in producing silk from the multicaulis taken up in the fall of 1838, kept through the winter, and planted out in the spring of 1839. Every attempt, of which we have heard, has been most encouraging. We give two instances, as perfectly conclusive of the value of the multicaulis for making silk.

Mr. McLean, of New-Jersey, in April last, planted one quarter of an acre with the roots and cuttings of the multicaulis, on soil of moderate fertility. The trees produced were not large, and the number about 5,500. He commenced hatching and feeding his worms on the eighteenth of July, and continued to hatch till the twenty-seventh of August—feeding, in whole, some 40,000, and not stripping the trees closely. The silk crop was 130 lbs. of cocoons from the quarter of an acre, and these gave 12 lbs. of beautiful reeled silk, or at the rate of 50 lbs. per acre; worth, at present prices, some 300 dollars per acre. Every thing connected with this experiment, was made with the greatest nicety and accuracy, and the details have been described by Mr. McLean, in a paper which we shall, at an early day, lay before our readers.

The other experiment was made by Mr. A. Clapp, of Hartford, Conn. He planted, the second week in May, one acre and a quarter of Morus multicaulis trees, laying down the trees whole, and covering them two inches deep, in rows three feet apart. Some failed, but those that came up did well. He says—"I raised fifty bushels of cocoons of excellent quality, and what I reeled, produced one pound of silk to the bushel, which is pronounced, by good judges, to be better than imported raw silk, and equally as good as any made from any other species of mulberry tree in our country." *Not one-half of the foliage was used;* and if 100 lbs. of silk can be made from 1¼ acre of land, of the multicaulis, which at present prices would be worth five or six hundred dollars, we think the tree is not to be contemned. What other tree in the country did this, last year?

As to the general remarks of Mr. Durant, on the mulberry speculation, we agree with him. The trees are now in the country; and, that they will produce the best silk, and in any quantity, we think, is demonstrated most fully. To cast these away for new and untried varieties, would, we humbly conceive, be consummate folly.—[EDS. CULT.

"silk business;" but, in that branch, they were not fortunate in the selection of attractive names for their trees; for, at the present time, after five years struggle with their combined operations, they have sunk the original capital, and are, besides, forty thousand dollars in debt.

Amidst all the trials and vicissitudes of the last fifty years, the legitimate silk culture, like some bright star, in a troubled atmosphere, has moved steadily onward; ever shining through the mist of doubt, that bedimmed the space between promise and hope. The germ, which eight years since, commenced in Connecticut, passed unscathed through the time and form of chrysalis that "tried even men's souls," and is now an insect, winged and perfect; multiplying in species and usefulness in building a tower, that may withstand the combined opposition of over-reaching diplomacy from without, and misguided legislation from within.

(Remainder in our next.)

Burning Prairies, &c.

Editors of Cultivator—I have just read an account in the "Christian Keepsake, Philadelphia," of the "burning of a prairie, and a whole family that perished in the conflagration," that is going the round of papers that delight in the marvellous, and which is calculated to create a very erroneous impression in regard to a prairie country. Such tales as this are vastly amusing to us who dwell upon the great western prairies; but to those who know naught of them, it is a wonder how we escape from such "a vast sea of fire," as they suppose annually "rolls in terrific grandeur," over the whole face of the country. Let me assure you that all these wonderful fire stories are more smoke than fire.

The idea of burning men, oxen, wagons, horses, and every thing that happens to be in the way, belongs to the great humbug family.

The soil of prairies is as diversified in character as that of a timbered country, varying from dry and hilly, to deep and miry swamp. The great body is dry, tillable land, and in a state of nature, is covered with a thick short grass, that would, if closely mowed, afford about three-fourths of a ton to the acre. When dry and dead in the fall of the year, it is very easy to burn, and will make just such a "sea of fire" as would a late mown piece of timothy meadow. Unless the wind is blowing with great fury, it is easy to extinguish, by beating it with a bush, board, shovel, or even an old hat; and a man can pass across the line of fire with all ease, or ride through it, or run away from it. I have often done each, and I have seen hundreds of miles of rail fence built upon the prairie, through which the fire passed annually, without setting it on fire, except in rare instances.

'Tis only in the great marshes, where horses or wagons can not travel, and consequently can not be consumed, that the numerous poetical descriptions of a "burning prairie" have any application. Upon some of these grow a very rank growth of vegetation, six or eight feet high in places, but generally about equal to a very good piece of mowing meadow, which makes a great fire, and would endanger the life of man or beast to come in contact with it. The space between the wet and dry land affords the best grass for hay. In this country in particular, the quality is excellent, and if well put up, cattle and sheep will eat it in preference to timothy or red top. The dry prairie also affords good hay, but very tedious gathering. The common marsh hay is no better than the "bog meadow hay" of the east. For a grazing country, none can be superior to this. Prairie grass beef, butter and cheese, is equal to any other for sweetness and richness; sheep are ever fat. Hogs, I cannot tell what they would do, for there are no animals here but would disgrace the name. Horses do not do well upon prairie feed, summer or winter; but the way we can raise oats and wheat upon our prairie land, is more wonderful than all the great fires that I have ever seen. It seems to be the delight of some writers to propagate error; but no person who has ever traveled over a prairie country, will believe that man or beast ever lost life in the "great conflagration" of dry grass which covers the land, which will not average more then six inches high. If the growth was very great, it could not be turned under with the plow at midsummer, which is the time that it is sought to be done by every good farmer.

Speaking of plowing, reminds me that it may be amusing to eastern readers, to hear a description of a "prairie plow." Fancy, then, a plow share weighing 125lbs., the beam fourteen feet long, attached to a pair of cart wheels, to the tongue of which are hitched from three to seven yoke of oxen, turning an unbroken sod, eighteen to twenty-six inches wide, and sometimes a mile in length, and you have a picture of "breaking prairie," more true, and more interesting than some accounts of a "burning prairie.

The sod of the prairie grass is very tough, and sometimes full of the roots of a diminutive bush called "red root," that are exceeding strong, and which require a sharp plow and strong team. A great fault, in my opinion, in breaking prairie, is not plowing deep enough. I have seen thousands of acres plowed only from two to three inches deep. If the season is wet, the sods will rot, but if dry, they become hard, and are in the way for years. Corn is often planted by dropping in every third furrow as the plowing proceeds, and singular as it may appear to eastern cultivators, often produces twenty bushels to the acre without any after culture. Oats and wheat are often harrowed in upon the sod, and produce good crops. If plowed deep, that is, five or six inches at first, it is best to put in the second crop without disturbing the sod. The necessities of the new settler should be the only excuse for breaking prairies early in the spring, or late in the fall; and above all, the new settler should not attempt too much the first year. But the land is so inviting, that he often overtasks himself, and gets a large field in crop, but half fenced, and undue exertion and exposure of health brings on an attack of that universal malady in all new countries, the ague, and he is left worse off than ever any emigrant was from the "awful effects of a burning prairie."

For the amusement of some of your eastern readers who have forgot "auld lang syne," I intend in my next to illustrate life in a long cabin.

Respectfully, &c.

SOLON ROBINSON.

Lake C. H. Ia. Dec. 15, 1839.

Farm Account—Balance Sheet.

Messrs. Gaylord and Tucker—As I have leisure, I send you a short extract from my farm ledger. As it would take too much room to give a statement in full, of each crop raised, I will merely give you the footings of the accounts, with the different crops:

Spring Wheat in 1839—6¼ Acres.

Dr.—To plowing, sowing, seed, harvesting, threshing and cleaning,	$51 50
Cr.—By straw, $10,—90 bushels wheat, 8s. $90,	100 00
Nett,	$48 50

Cost in labor and seed, 46 cts. per bushel.

Corn—3 Acres.

Dr.—To plowing, planting, hoeing, harvesting, seed and manure, $2,	$43 25
Cr.—By 138 bushels corn, at 4s. $69—stalks $14,	83 00
Nett,	$39 75

Cost in labor and seed, 24 cents per bushel.

Oats—3 Acres.

Dr.—To labor and seed,	$18 13
Cr.—By 100 bushels oats, at 31¼ cts. $31 25—Straw, $3,	34 25
Nett,	$16 12

Cost in labor and seed 15 cts. per bushel.

Potatoes—5 Acres.

Dr.—To labor $71 63—106 loads manure, 1s. $13 25—78 bushels seed, 3s. $29 25	$114 13
Cr.—By 915 bushels potatoes, at 25 cts	228 75
Nett,	$114 52

Cost in labor in raising, and seed, exclusive of manure, 8¾ cts. per bushel.

Sugar Beet and Mangel Wurzel—¼ Acre.

Dr.—To labor, $10—2lbs. seed, at 8s. $2,	$12 00
Cr.—By 225 bushels roots, at 18¾ cts	42 19
Nett,	$30 19

Cost in labor and seed per bushel, 4 3.10 cts.

You will perceive I have charged nothing for interest on the land, as it will be the same in each case; neither have I charged any manure, except where it has been applied directly to the crop this year; and in that case, I have charged only the expense of drawing, as my manure was all yard and stable manure of the last winter's make. My oats were on poor wet land; my wheat on strong land, but one half in an old orchard; my corn on good land, which had borne a crop of potatoes in 1838, and well manured; my potatoes were on land considerably worn, and a part of it wet; and you will perceive I had a poor crop, which added to the expense of raising at least one-third per bushel. My beets were on good land, heavily manured in 1838, and in that year bore a crop of corn. In gathering my beets, I used a subsoil plow, of the description of the one figured in the Genesee Farmer, and recommended by Mr. Garnett; and here I would recommend the inserting his communication, or at least the plate, in the Cultivator * for I am sure any farmer with 50 acres of land, will find use enough for it to well pay the cost, even if he does not use it as a subsoil plow at all, in ditching, digging potatoes, sugar beets, and carrots. It is an excellent article, but it should be made twice as strong as recommended by Mr. G., or it will not answer in clay lands where it is most needed.

If any man wishes to double the value of his colts or calves by next spring, let him buy some shorts, or have some oats ground, and feed them liberally in a warm place, and he will never repent the expense. A neighbor of mine, to whom I lent the Genesee Farmer last year, assured me to-day, that his six calves, to which he fed six dollars worth of shorts last winter, were worth $30 more last spring, than any he ever before raised; and that he took the hint of better feeding from the Farmer. And now I will ask any man, and he need not be very expert in figures, to calculate how long it will take that man to expend the money he gained by that one article, at one dollar per year? I regret I cannot furnish you a list of subscribers with this; my only excuse is, I have not had one moment of time, but I intend to spend a day in that matter as soon as the roads are passable, and before I can commence heavy work with my team. Respectfully yours, &c.

S. PORTER RHOADES.

Skaneateles, December 30th, 1839.

* We shall comply with this suggestion in a future number.—Editors.

Management of Sheep—No. 9.

Messrs. Editors—As an important and indispensable feature of successful management of sheep during winter I chose in my last to dwell very briefly on the necessity and advantages of *protection;* and, also, the kind of shelter of which I make use.

There are several other advantages of barns, besides the means they afford of shelter—if constructed according to the plan I have adopted—which can not be too highly appreciated. There is not a farmer in the land but whose temper has been fully tried by some sudden shower of rain when securing his hay, especially if when engaged in the process of building a stack; which, if it is half or two-thirds completed, can not escape considerable injury. Now all this is entirely prevented by means of barns, for every load is of course secure from rain the moment it is under cover:—therefore, taking ten years together, I doubt not that the saving from this source alone, would reimburse the expense of a barn, as described in my last, to say nothing of the large quantity of hay which is inevitably injured on the tops and surface of stacks. An honest man, and first rate farmer, once observed to me, "that the man who *invented* stacks, ought to have been gibbeted." For my own part, I am not so much disposed to blame the *inventor,* as those who follow his wasteful example. Putting *all* the hay into stacks, and the *rest* in the barn, is wholly at variance with the enlightened spirit, and forward-march of agricultural improvement; and it is a matter of much regret to me that so few—if any—in our agricultural papers cry aloud for reform. It is a truth, that if the damaged hay of stacks of this state alone, for one year, could be gathered into one pile, its huge bulk would resemble, more than any thing else, a spur of the Allegany mountains. And it is this very trash which some farmers *compel* their stock to eat, or starve, which causes very many of the cattle and sheep about the country to look as they do on the first day of May; not unlike those accurate representations of the alligator and landpike hogs in your last No. By the way, those pictures were so like life, and the description so amusingly graphic, that it causes a hearty laugh whenever I take up the Cultivator; those two portraits have immortalized Mr. Allen. Wont he get up something as accurate of some of our *native* cattle?

Allow me, my brother farmers, to recommend to you as soon as the hard times are over, to go to work and build yourselves barns, and every ounce of hay fed from them will be as bright and sweet as the day it was gathered. The great saving in this respect, and the greater facility of securing it, will repay the expense in a short time, with a handsome premium besides.

Connected with several of my barns—and I intend it shall be so with all—are yard fences, built of posts and boards; the boards nailed lengthwise and close, which is of much consequence when the sheep are feeding, by excluding the wind. I will further add, that the fences on the west side, are on a line with the buildings; this is mentioned as a caution to others, for if they are not so made, you may expect to have your yards filled with snow drifts; if done as I recommend, there will be none, as the drifting point is generally from the northwest, the snow striking that angle of the building, glances off by means of the fence, and the drift is formed beyond the precints of the yard. Where I am not provided with yards, use is made of "wind breakers," for a description of which I refer to my last. The yards, to be sufficiently capacious for 100 sheep, which is as large a number as any farmer should allow to herd together, should extend 40 feet in front of the south side of the building, and about that number of feet from the east end. Aside from the benefit which yards afford as a means of protection from high winds when the sheep are feeding, is the quantity of manure which can be made, if properly littered with straw during the foddering season. Heretofore, from some of my sheep barns, I have carted away in the spring over 40 large loads of manure, all of it nicely cut up and ready for turning under by the plow; the difficulty of plowing under straw as it comes from the machine, every practical farmer knows. In a former number I asserted that protection was not only a means of saving provender, but *manure;* what is just mentioned is the proof; and if it were necessary, by detailing my experience before sheltering my sheep, enough testimony would be adduced to enlarge the proof to a demonstration. My barns stand on the borders of meadows, and through doors about 4½ feet square, the hay is stored. These doors are hung with strap hinges with hooks to fasten them when shut, and they are as firmly fastened when open; *slam bang, &c.* of doors, or any thing else, belongs not to my creed. Immediately under doors, in size the same as above mentioned, on the front side, is a moveable pen—say 3 feet in height, 5 feet in length, and the same in breadth, for the reception of hay when thrown from the building for foddering. Its construction is simple, being strips of board nailed to 4 pieces of scantling, which should be so close as to prevent sheep getting their heads between the slats. I note this for the reason that there is much waste of hay by throwing it on the ground, whether from stack or barn; for if the weather is moist, the sheep piling upon it with their dirty feet will cause more or less to be rejected. Aside from this, a pen will prevent the hay seed and dust from lodging in the wool; and if it be the chaff of clover hay, every experienced wool grower is aware how difficult at washing time it is to eradicate it from the fleece. It is hay seed and chaff which causes manufacturers very often to plead a reduction in price of fleece wool, and with good reason.

Another advantage of a pen is, that if too much hay is thrown down for a foddering, it can remain in it, and save the trouble of pitching it back. I choose to be thus particular, Messrs. Editors, about small matters. "Take care of the cents and the dollars will take care of themselves," is a proverb farmers too frequently forget to practise. Furthermore, inattention to *small things* is productive of more evil to farmers, in the long run, than any other cause within my knowledge; and to no branch of farming will this remark apply with greater force than in reference to sheep husbandry.

Having cleared the ground thus far, I proceed to speak of something of vast importance to the welfare of the sheep, viz: frequent littering of the sheds and yards with straw, for with no other domestic animal will a want of cleanliness, and consequently impurity of air, so soon induce disease. Recollect that aside from this, you are rewarded in other respects, for the sheep will consume more or less of the straw, and the residue is converted into manure. Said a brother farmer to me once, who had two or three ill constructed hovels for his sheep, "I am getting quite out of the notion of sheltering my sheep, for the place where they *roost* gets so nasty." Do you ever put any straw under your hovels? "Sometimes." How often? "Two or three times in the winter." Pray, how often do you clean out your horse stable? "Every morning;" and you litter the stalls every night, do you not? "Yes, of course." Well, sir, what sort of a place would it be, if done no oftener than you litter your sheep hovels. Nasty enough, was his reply. Suffice it to say, he got himself into a corner, from which he did not escape till he was served right and left with knock-down arguments in support of the necessity of at least paying as much attention to his sheep as the rest of his stock. This occurred sometime ago; a few days since I met him again; he told me he had built better hovels—that he littered them once a week or fortnight, and his sheep never had done so well before; that it was a pleasure every morning to see them come out of their clean, warm nests; and further, was now well persuaded that increase of profits from sheep, like every other stock, must come from increase of attention. I grasped his hand with pleasure—told him he reasoned "like a book," and confirmed his good impressions, by assuring him, that sheep were the most grateful creatures on earth, by returning five dollars for every one expended in protecting them from the terrible storms of winter, good keeping, and attention the year round.

It would be inferred from the above, that it is my practice often to litter my sheds; it is done once a week, on an average, through the foddering season. And with a view to greater convenience in this, late in the fall, several loads of straw are drawn and deposited in a pen, for the purpose, adjoining each barn. I would have your experienced readers understand, that very little straw is necessary at a littering; just enough to cover the excrement is all that is necessary. I will add, that at the time of drawing the straw, a considerable quantity is scattered about the yards; by adopting this course you will save *all* the manure from your sheep, by being intermixed with the straw.

On reflection, so much occurs to me, yet unsaid, in reference to *winter management*, that I shall be obliged to trespass on the columns of the March No. before my subject can be completed.

I cannot conclude, gentlemen, without expressing the unqualified pleasure, the perusal of the last number of the Cultivator afford me. Think it not flattery, but a just compliment, when I say, that several of the articles both editoral as well as communicated, in elegance of composition, would grace the columns of the first periodicals of our country; add to this, the useful knowledge imparted to the farmer, which, if carried into practice, would increase his gains some twenty fold, and how cheap is a year's subscription to your valuable paper. There is not a farmer in the land, but whose pride should prompt him to take an agricultural paper, to say nothing of the advantages of instruction derived from it, applicable to his calling. God speed you, in your honorable and useful vocation; may your zeal not abate; and I trust something more *solid*, than grateful hearts, will be your reward. Your friend. L. A. M.

Lansing, Tompkins co. New-York.

Soil and Climate of Florida.

To the Editors of the Cultivator:

You perceive that in this delightful tropical climate, we have a vegetating temperature on every day of the year. You also know that these exclusively calcareous islands, are covered with a luxuriant growth of native plants of the tropics. You farther know, that the Morus multicaulis is a tropical plant, from the tropical Phillippine islands, and that hence this Manilla mulberry is now naturalized in its native climate, on the tropical Florida Keys. You moreover know, that, in this tropical climate the Manilla mulberry is an evergreen tree, which is propagated by its numerous buds, and which does re-produce its enormous leaves, on every day of every year. And you should hence know, that in this tropical climate, the silk-worms can be fed, and their silk-cocoons can be produced on every day of every year. But probably, even you have not duly reflected on the wonderful peculiarity of the only earth which constitutes these islands, and on hence the wonderful productiveness of their exclusively calcareous soils. I have repeatedly announced, that the long range of numerous islands from Cape Florida to the Tortugas Keys, is composed exclusively of the corbonate of lime; and that hence on all these Keys of exclusively calcareous materials, not a particle of silicious sand, or aluminous clay, has been created by nature.

Indeed, whence could be naturally supplied, either sand or clay, to coral rocks on a limestone foundation in the depths of the sea? As then these islands are merely vast beds of the great mineral manure of civilized agriculture, is it not as surprising that any plants are flourishing on these beds of exclusively mineral manure, as it would be to find any plants flourishing on any beds of exclusively vegetable, or exclusively animal manure?

All scientific vegeculturists, should hence feel great curiosity to learn not only what indigenous plants are really luxuriating on these exclusively calcareous soils, but also, what exotic plants may equally flourish on these arid calcareous Keys. Besides the Morus rubra, which is indigenous to the main land near Cape Florida, the exotic Morus alba, also flourishes on this little coral rock, called Indian Key. From the fruit of the Morus multicaulis, ripened on this islet last spring, my younger daughter has a vigorous seedling, which promises fairly to prove a very valuable variety, entitled to the distinctive epithet of multiramas, or many branches. From some mulberry seed imported direct from Canton, I have also one seedling, which also bids fair to become a very valuable variety—of which one distinctive characteristic in the leaves, is the convexity of their upper surfaces. (By the bye, this single plant may be the only compensating equivalent for the twenty-five dollars I paid to Thorburn in New-York, a year ago, for ten ounces of Chinese mulberry seed.)

Scientific horticulturists will hence perceive, that during the wintry weather of the northern states, the most valuable experiments can be made on this miniature island of Indian Key. The most intelligent patriots will best appreciate the national importance of speedy trials of all valuable seeds on these arid islands. The enlightened Commissioner of the Patent Office at Washington, has furnished the only practicable means for the direct transmission of valuable seeds to all sections of our extensive country. Need I say more to excite the immediate co-operation of all intelligent philanthropists, in my isolated endeavors to form a miniature collection of all possible varieties of valuable plants for future propagation over all the calcareous soils of Tropical Florida.

Very respectfully, your obedient servant,

HENRY PERRINE,

Sup. for the Trop. Plant Co. of Florida.

Indian Key, Tropical Florida, November, 1839.

[Lat. 24° 48.' Long. 80° 55' W.]

Agriculture and its Improvement.

In reviewing the varied fruits of industry, and the aids it receives from the inventive genius of man, my mind has ever been attuned to the persuasion, that whatever we owe to the beneficial talents of others, our first gratitude is due to him who makes a blade of grass grow where grass grew not before. This sentiment calls to mind the late lamented Editor of the Cultivator, who, to the thorough study of the science of agriculture, added its most successful practice, in converting the sandy and barren plain into fields blooming and yielding, in rich abundance, almost all the varied productions of our climate. To one who had seen the soil of his farm, previous to his becoming its cultivator, it now seems to have been visited by some magic hand, and it would be incredible, that the work of man could have produced such a change, were it not that so many eyes have witnessed the astonishing fact. The fruits of his labor, with other kindred spirits, in advancing the cause of agriculture, are already seen in the general improvement of our farms; and the whitened fields of our country for generations to come, yielding their double and threble amount of annual crops, will be the ever blooming monuments of his skill and industry, and if honor be rendered to whom honor is due, his name will descend to posterity among the first benefactors of man. During the many years I have been engaged in commerce, I have ever had an eye to the superior importance of Agriculture; not by handling the plow, which my special avocation forbade, but by facilitating, as far as within me lay, the application of the most approved theories to practical, but often unskilful operations of the husbandman. My own practical knowledge was necessarly limited to Horticulture, on a small scale. In the management of my garden, I have paid much attention to the growth and propagation of vegetables, fruits, plants, and flowers, and by a free distribution of seeds and their products, carefully selected from the best stocks I could procure, and cultivated with assiduity, I have, I hope, done some good. Not confining myself to the larger opportunities which presented themselves, I availed myself occasionally of the smallest means that promised success. Of this latter, you will discover an evidence by an inspection of some razors recently presented for your acceptance. The words "Agriculture" and "Horticulture," etched on the blades, will show, that if they are but of little intrinsic value, they are yet in character; I am desirous that the farmer, even when using this implement, should be held in mind, that we are his debtors; with this view, I ordered a quantity of these razors to be manufactured for sale in my store.

Of all civil occupations, that of agriculture should be regarded as foremost: It is the most indispensable, the best preserver of health, of morality, of virtue, and of religion; it was the occupation of our first parent, and has been that of the majority of his descendants in all past ages, and must necessarily so continue to time's end. How largely are we interested in its improvement and success! It is, however, a painful truth, that its progress in our country, is far from being exhilerating. Habits, venerated only for their antiquity, are obstinately adhered to, to the exclusion of "book farming," and this without any investigation into relative merits. Numerous are the deformities growing out of this error; slovenly managed farms, not arising from idleness; for idleness is not the besetting sin of the tillers of our soil; farms disproportionate to the means of proper cultivation; fields rendered unproductive by a succession of wasting crops, and then left to be resuscitated by the slow operation of nature. To these might be added other equally obvious defects, too numerous for present detail.

It is passing strange, that while the aid of the press is consulted in support of nearly every design, even of those of minor importance, or of doubtful policy, agriculture, the most important of all, seems almost to reject its influence; this unhappy prejudice is gradually yielding to better judgment, and we may hope the day is not distant when the farmer will be no more without his agricultural hebdomadal, than he would be without his almanac.

There are certain primary principles so evident as to be within the unaided observation of every tiller of the soil, yet even these often require a friendly monitor to keep them present to the mind: others there are, dependent on scientific research, and seldom to be discovered except by the studious reader. The press, in these cases, is the best monitor, and the truest instructor. In truth, the few shillings annually charged for an agricultural journal, if properly attended to, are the most productive outlay of the farmer.

The proper selection of seed grain is an important consideration. The best if possible should alone be used. Grain is liable to degenerate by long succession of unchanged seed. An occasional change of seed for that of other farmers, will often be found beneficial, insomuch, that even that received in exchange, will, although apparently of an inferior quality, frequently yield a produce superior to that given in exchange, especially if the latter has exhibited any symptom of degeneracy. The potato is a very necessary and valuable esculent; there is perhaps no vegetable more liable to degenerate by a continued succession of the same stock in the same soil; were it not for the friendly agency of nature which annually scatters its seed on the ground, and thus gives birth to a new generation, this necessary article of food might be entirely lost. This effort of nature never fails in mild climates, but should not be relied on where the rigorous cold of our northern winter seldom fails to destroy delicate seeds when exposed to its action. An exchange of seed potatoes with a neighboring farmer, will generally check the menaced evil, but the true mode is to imitate nature; the farmer should every two or three years preserve a small quantity of the seed, which is contained in the balls growing on the green tops or stalks of the potatoes, and sow the same in a bed in his garden; the plants, when they appear over ground, should be transplanted, and placed at the usual proper distance. The produce of the first year's growth, generally of a size too small for use, may be reserved for the next year's planting. This is deemed an infallible remedy against degeneracy, and gives the best security for good and wholesome crops, in regard to abundance and quantity.

The improvement of his breed of cattle is an object of the greatest solicitude to every farmer. He does not always know how much is directly in his power, in regard to this object. The secret, if it be one, consists, in no small degree, in a plentiful supply of food to the young animal; the full grown beast will eat less and fatten sooner, than were he neglected while young. An early attention to abundant feeding, will improve the humblest stock of cattle, while the best breed, if neglected, or not sufficiently fed while young, will degenerate, and become, in their maturity, unsightly and profitless.

The overflow of the river Nile is a display of irrigation on a magnificent scale; on the subsiding of its waters, the agriculturist almost without an effort, raises an abundant crop. Egyptian grain has, by reason of its quality and abundance, become proverbial. Lands, adjoining rivers, or streams of water, where the overflows are periodical or occasional, and not too frequent, produce results proportionally similar to those of the Nile. I have seen no calculation made with a view to ascertain the utmost amount of money, or of labor as the equivalent of money, which a farmer may safely expend in the irrigation of his lands. I incline to the opinion that the outlay may profitably exceed the general apprehension. The watering of the kitchen garden is deemed by the horticulturist indispensable; the labor is generally performed by hand and watering-pot, the most expensive of all modes in use; yet, I believe that, on a minute calculation, it would appear that no equal extent of the farm yields so large, or, all matters considered, returns so large a per centage on the capital employed. This, if true, goes far to prove, that small farms well cultivated, and irrigated, even at considerable expense, are more productive of profit, than large farms without the means of a thorough cultivation, and depending on casual falls of rain for the necessary moisture.

All lands, at all worthy of cultivation, contain the means of retaining them perpetually in a state of continual productiveness. Ignorance or prejudice alone would permit any part of the farm to be fallow. Compost is the common production of every farm, and is

not the least valuable resuscitator of exhausted soils; is as usefully applicable to every soil, increasing in every instance the quantity of the crop. How strange that this valuable auxiliary to agriculture, should be disregarded and left scattered about the farm-yard to be trodden by man and beast, and thus rendered almost useless. I send you herewith an extract which, if new to you, may be deemed worthy of a place in your useful, and (I intend no flattery) truly well conducted paper.

Yours, &c. ALEXANDER WALSH.

The Place to Dig a Well.

Do you wish to dig a well? And do you know the best place to dig one? Why, the best place, to be sure, is where a well will be most convenient. But nay, friend, be not in haste; the very best place is where you will get plenty of water. Do you give it up? If so, I will proceed to tell what I know about finding the best place. There are certain persons who profess the skill of ascertaining where running water may be found under ground; and this is the way they proceed:—They cut a crotched twig from a living peach tree. The ends of this twig they hold in each hand, turning the palms of the hands upwards, and holding it sufficiently firm by pressing upon it the little finger and the two fingers next it. The largest end, or where it was cut from the tree, stands erect. Thus prepared, they walk along near the place where it is desirable the well should stand, and if they pass over any stream of running water, the top of the twig indicates it by turning down to the ground.

Now, reader, lest you make up your mind that this article was written for a hoax, or that I am myself a water witch, I disclaim all personal knowledge of the skill whatever, but I have known three persons who profess the art, all of them of the most respectable character, one a clergyman of superior talents, a classical education, and whom no one would ever accuse of intentionally deceiving the credulous. They have given abundant testimony that they themselves believed in the art. Some experiments have been tried, sufficient to satisfy the most incredulous. Once on a certain time, one of these men being at a distance from home, and where he was unacquainted with the ground, an experiment was tried to see if he could tell where an aqueduct run. He was accordingly blindfolded and followed it exactly, and would have plunged into the spring at the head of it had he not been restrained. Certainly they have been uniformly successful in finding water wherever they have been employed, and their services were always gratuitous.

There is, notwithstanding all the testimony that these men were sincere in their professions, and did accomplish what they attempted, much mystery attending it, and I have often been tempted to discard it altogether. Why take a twig from a peach tree in preference to one of oak or maple? Why turn in one man's hand and not in another? are questions I have never heard answered, or an explanation attempted. The hypothesis that they were born under the influence of a particular planet, or in a certain phase of the moon, might suffice in the by-gone days of blue laws and witch burning in old Connecticut, but in this enlightened age, such suppositions are hardly admissible. It is no doubt true that a close observer may become skilful in tracing currents of water by the make of the ground, appearance of vegetation, &c. but such indications can only be relied on in uncultivated lands.

I said I knew of three men who professed the art of finding water by means of a peach twig: I have known others, and have heard of many, in whose hands the twig would turn down in crossing currents of water. Very probably the number is not small. I selected these from their respectability. Had an ignorant juggler made pretensions to this art, no reliance could be placed upon it. These were not ignorant men; they were not visionary, but men in whose veracity this community had the utmost confidence. In hopes that some of your correspondents can unravel the mystery in which this subject is involved, or show its fallacy, I have drawn up this hasty sketch of a useful art, practiced by intelligent men, and believed in by the most respectable men of my acquaintance.

Yours, &c.
MYRON ADAMS.

Ontario co. Dec. 10, 1839.

Clover in the Southern States.

MESSRS. EDITORS—When in Orange county, N. Y. a youth, I assisted my father, (one of the earliest clover cultivators in the state,) to raise clover; and having experimented with clover here, I concluded there were peculiar difficulties in a hot climate to ultimate success, in regard to burning out after a good start. One way to obviate this, I found, was that of sowing in the fall or last of September. But from a hint I got in the "Farmers' Register," about improving wheat culture, by covering it after sowing with pine leaves, (here called pine straw,) I think I have discovered an effectual remedy for the misfortune of burning out; and a remedy too, that in the use of it, for shading the ground, and the vegetable matter added thereby, more than pays for the trouble of applying it. After the wheat is sown, and (it may be after it comes up) in the fall, cover all over with pine straw, (other straw would do I presume,) an inch or more thick; and the following spring sow clover seed, (even in the hull will do, as I have also tried.) I have left out lands not covered with the straw, where no success—but adjoining, where covered with the straw, fine clover—or as good as in northern climes.

Rohan potatoes, (as well as multicaulis and grape vines, which I cultivate on a pretty large scale,) do well here. Yield of Rohans, at rates of a bushel for a single one planted. More particulars of all, when at leisure.

Yours, &c. in haste, SIDNEY WELLER.

Brinkleyville, Halifax county, N. C. Jan'y. 10*th*, 1840.

Russian Horses and Equipages.

The Imperial Empire has long been celebrated for the fleetness, elegance, and hardiness of its horses; and the means for rearing them are almost boundless, especially in the richer and more southern provinces. Here single noblemen possess them by thousands, and their breeding is a source of great profit and wealth to the extensive landholders. Russia has always been open to importations from Arabia, Persia, and Turkey; and the best crosses on the native stock, were undoubtedly derived from the east, till the noblemen found to their great mortification in 1825, how easily even a second rate English racer could beat the fleetest horses from the Cossacks of the Don. This gave a fresh impetus to the production of good horse stock, and the Emperor and nobility have since annually kept up their importations from England, for the purpose of greater improvement, with marked success. With the immense plains and wide frontier that in case of attack Russia would be called upon to defend, a swift and efficient cavalry is of paramount consequence to her; the same may be said in a measure of our own country; and though we are far superior to this great empire in point of water communication, still with a view of making us strong, and more efficient, even in a civilized view, too much attention cannot be paid to the rearing of a fleet, hardy, and enduring race of horses.

The manner of treating horses in Russia, is much more kind and familiar among the people in general, than in other parts of Europe, and, as in Arabia, he is rather the petted companion, than the abused drudge; and a fat horse, and a fat wife, are the neplus ultra of a Muscovite's pride. During a residence of eighteen months in Russia, I scarce ever saw a horse struck a blow—the drivers never carry a whip, unless a short braided thong at the end of the reins, that is totally powerless for any thing like punishment if it may be called such; indeed, instead of beating to obtain a great performance, he seems rather to depend upon plenty of feed, good grooming, and *large talk* to the sagacious animal; and it is quite amusing to the traveler who has learned to understand the *zvotshiks*, or driver's lingo, to hear how he gets on with the equestrain colloquy. Taking a rein in either hand, he commences with a gentle pull, and at the same time gives a long drawn and peculiar sort of grunt, which the horse seems to receive as very encouraging, and starts off at a rapid pace. Then begins the discourse, which generally sets out with an exordium of his superb shape, his splendid action, and the performance that is now expected from so celebrated a horse, not only by his master, who he well knows, but by the distinguished stranger, that he has now for the first time the honor to conduct through the great Imperial Empire. To this follows a recapitulation of what he has before so honorably achieved, interlarded with various episodes, and then a national song in a sonorous and well modulated voice, now spirited and cheering, anon plaintive and mild, and all wound up by a peroration of ejaculations to the traveler, with a half turn of the head, a comical and beseeching wink of the eye, and a respectful touch of his cap, to assent to the truth of all he may have said and sung.

This is for the country; in the city, the horse attendants are quite as well known to and familiar with their beasts, but more silent, generally confining their lungs to the encouraging grunt, and crying out at the top of the voice, *pode, pode*, get out of the way, to any thing likely in the least to obstruct their rapid career. A stranger would feel no little alarm, at the sight of four mettlesome and apparently uncontrolable horses, suddenly pulled up for a call of business or pleasure, from the noble occupant of the carriage to which they were attached, to see the little fellow of a postillion, when he knows that the stop is a seasonable time, dismount from one of the leaders, and curl himself up on the pavement at their feet for a profound nap, while the coachman, slacking the reins to the wheel pair, would as unhesitatingly nod responsively on his box, till aroused by the footman to again set out on their swift career; again when pausing at some open square, the coachman descends, and calling to his spirited coursers, they follow him all round as quite and obedient as hounds in the leash.

It is to the cavalry, however, that we may look for the highest discipline and most imposing show, especially to the regiments of about fifteen thousand strong, composing part of the imperial guard, generally quartered in and about the city of St. Petersburgh. Here the horses move with the precision of highly disciplined men, and in all their evolutions seem to understand their part of the duty quite as well as the soldierly riders. Their appearance also is very imposing and warlike, with long flowing manes and tails, superb mounting, and fiery action. Each regiment showed but one color, every horse in it being entirely bay, black, chestnut, and so on, and as nearly matched otherwise as possible. The Cossack regiments are mounted on their own peculiar breed, rather small in size, with yew neck, and cat hams, but fleet, hardy, sagacious and enduring, and most admirably adapted for the duty required of light troops—the sudden foray, skirmishing, leading on to the attack, or harrassing an enemy, or covering its friends in a retreat.

The style of traveling in the country is with from three to six horses abreast, with or without a pair of leaders as might be required, rope, traces, and all the rest of the harness as rude as possible; the carriages, however, are comfortable. In the city the equipages are generally splendid, with showy harness, and the bridles universally without blinders. Four horses are the ton, with a postillion, a coachman, and two footmen to all that can afford them, the leaders being harnessed in with long traces, that placed them ten feet or so in advance of the pole horses, thus giving the whole equipage a much more dashy appearance. This was the usual style of the nobility; the Emperor Nicholas generally thus took his airings in an open barouche, with but a single footman, the Dowager Empress, and Georgian Queen, each in their own carriage with six horses, the servant in gaudy livery, with a company of out-riders in dashy uniform.

But the most common vehicle, and that which was used in the towns and their suburbs alike by all, from the Emperor down to the lowest citizen, whenever it suited their pleasure or convenience, was the single droshky. This is a mode of conveyance, I believe unique to Russia, and is so cheap and agreeable, I wonder it has never been introduced into our own cities. For a description, let the reader imagine a bench about fifteen inches wide, and four feet long, elegantly cushioned, with a raised back to recline against, and a seat forward for the driver, all hung on easy springs, over very low wheels, with a boot on each side, and step at the bottom something like those attached to a city omnibus, curling over the rim of the low wheels, and serving the double purpose of a rest for the feet, and to keep the dust and dirt from being thrown on to the rider. A fast trotting horse is placed in the fills, and one moves round the wide streets at a cheap rate, and with great expedition. Aside from its being the common hack of the city, the droshky is frequently used as a highly stylish and fashionable vehicle especially by dandy bachelors, and the gay officers of the imperial guards. In addition then to the fast trotter in the fills, another horse is added, trained to naggishly turn out his head and gallop alongside, and when one desires to be rather *outre* stylish, a galloper is harnessed on each side of the fill horse, making three abreast. I can conceive nothing more spirited or dashy in horse driving than this. The American supercargoes and ship captains patronized it with great glee. A single rider in this style seemed to make up for the deprivations of a whole voyage, and they significantly termed it a regular built clipper, scudding afore a gale of wind, with all her lower studding sails set.

The ezvotzhik of the establishment is hardly less unique than the droshky. He wears a splendid forked trimmed beard flowing nearly or quite down to his girdle, a scarlet checked shirt without collar and no cravat, a long blue caftan buckled round him with a highly polished leather belt, neat boots, and a low bell-crowned hat, with a wide ribbon, dashy buckle, and brim knowingly curled at the sides. Thus equipped, the rider throws himself astride the droshky bench, letting his feet rest easily in the boot on each side, and gracefully leaning back, gives the word *poscarrie*—go ahead. The ezvotzhik now seizes a rein with either hand, his horses seem to enter into the spirit of the thing, and he moves off like a second Phaeton, leaving the rider to the conviction that a droshky drive *en gallopade*, through the magnificent streets of St. Petersburg, along the banks of the clear Neva, and over the garden grounds of the superb neighboring palaces, on a quiet summer's day, is well worth the trouble and suffering of a long voyage across the Atlantic.

A. B. A.

Expense of Keeping Useless Horses.

MESSRS. GAYLORD AND TUCKER—I have long been satisfied, that many farmers keep useless horses; but had not been so forcibly impressed with the ruinous consequences, as to think of writing any thing on the subject, till I met with an article in a Pennsylvania paper, taken from the Farmer's Cabinet, estimating the expense of keeping extra horses. The article alluded to, makes a minute calculation on the difference of keeping seven extra horses, or fourteen cows, and irresistibly enforces upon the mind, the truth, that a few useless horses will eat up the income of any common farmer, who is guilty of such injudicious management. I write this, to call the attention of farmers to the subject, knowing that it needs but little reflection to satisfy them, that my calculations are correct; and that the consequences must be blighting to all their efforts for independence or affluence. As I am not so conversant with the expense or keeping cows, or the profits arising from them, as sheep, I shall substitute them for cows. I believe twenty sheep may be kept with less expense, less care, and less liability to disease or accident, than one horse; and the profits from twenty well selected, and well attended sheep, would not, on an avarage from the last ten years, have been less than three dollars a head, for wool and increase; making sixty dollars a year—and that sum, with the like added to it each year, and kept at annual interests for ten years, would amount to $828.94; and the difference of keeping the useless horses ten years, would be $2,486.82, and for fifteen years, it would be about $4,400; and for twenty years, about $7,200; and for thirty years, $16,560; and for forty years, $34,000.

Figures will not lie, and the conclusion is, that the difference between keeping one extra horse, or the same stock in sheep, makes, in the actual profits of the farmer in ten years, the sum of $825.94; or three useless

horses in ten years $2,486.82; and in that ratio for forty years, $34,000. Will not the above calculation account for the unsuccessful, embarrassed, and even bankrupt condition of many, with whom we have been, or are acquainted? And is it not a fact, that many farmers in our country, have supported useless horses within the last thirty or forty years, the actual expense of which would amount to more than the value of their farms?

Yours respectfully,
DANIEL S. CURTIS.

Canaan Center, January 18th, 1840.

History of a "Comforter."

I shall offer no apology to the editors of the Cultivator for the following history of a "Comforter," believing it to be their object to afford information in every department of out or in-door husbandry; and I shall offer none to their readers for illustrating, even in such a trifle, *the great science of economy.*

As winter gave indications of its approach, Mrs. —— said to me—"We must have some additional bed clothing, my dear." "And how much, and what kind, is wanted?" "Blankets sufficient for two or three beds." "This seems rather formidable in these *excruciating* times, but we must lie warm through the cold weather, children, servants and all, and have a snug bed for a friend or two besides. What say you to some more comforters?" (We had half a dozen of the *thin kind* already.) "They may answer, if I can find time and strength to make them." I thought this a good opportunity to get one made after my own fashion however; and accordingly I sent for a piece of calico and eight pounds of batting. To make this all up at once in the old fashion way, was of course not immediately to be expected. I stipulated therefore for *one, if* it should be made agreeable to my directions. The preliminaries agreed upon were—that it should be four breadths wide, two and a quarter yards long, and be filled with the whole quantity of batting; and as quilting was out of the question, knotting at a quarter of a yard distance was decided upon. This "unheard of quantity of stuffing" was finally distributed, and secured, and at once installed on our own bed. My wife was the first to retire, as I alleged some excuse for delaying till the experiment was tried, she having retained some additional covering despite my remonstrances to the contrary. In a few minutes the counterpane was thrown off, soon a blanket was laid aside, and finally, the only item remaining, save the sheet and comforter, was disposed of, and there was warmth to spare for that and every successive night this winter, the light and downy feeling, affording in addition, all the luxury of a summer atmosphere.

To come to the *arithmetic* of the thing:

18 yards calico, at 8 cts.	$1 44
8 lbs. cotton batting, at 1s	1 00
Thread, say	06
Sewing, 1 day	50
Total	$3 00

expended in a comforter, is worth three times the sum in blankets.

A.

Buffalo, December 31, 1839.

Rearing Calves.

MESSRS. EDITORS—It is a notorious fact that cattle have not been reared of late, to meet the increased wants of society. It has been said that the high prices of butter induced the farmer to kill his calves at birth, and feed them to his swine, to save the milk for butter. If this be true, the cruelty and waste might have been avoided, without diminishing the quantity of butter.

The cream may be skimmed off, and the skimmed milk fed to the calf, by adding meal from any grain; or by potatoes boiled, mashed, and mixed with the milk, and fed to the calf, more profitably than to give it the new milk. This mode of treatment will fatten the calf for the butcher, or for raising it, as well as by allowing the calf to suck or drink the new milk.

This has been tested by Mr. David Hearsey, the toll-gatherer at the Mohawk bridge here. He has practiced this mode of feeding his calves for some years, and no one has raised finer and better calves, nor so large and thrifty, that I have seen. He has usually made 7 to 8 lbs. of butter per week from the cow, at the time.

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Remedy for the Turnep Flea.

The little black flea, resembling the common dog or hog flea, in size and color, are so plenty in this region, that they often destroy the whole crop of all sorts of cabbage, turneps and radishes, when they first appear above ground.

My neighbor, Mr. James Rosa, sowed the ruta baga in two pieces, on the alluvial island ground here, the last season. The one patch, the plants were all destroyed by the flea. The other piece, at the time the plants began to appear above ground, he sprinkled over with the *urate* manure, dissolved in water, as directed, and sprinkled over the plants, by the common tin watering pot, and saved a bountiful crop of the turneps.

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Apples as Food for Stock.

I have been informed, that some farmers in Charlton, on becoming tee-total abstinence members of the Temperance Society, cut down their orchards of apple trees, thinking the apples would be of no value, since they could not drink cider. There are many useful proofs, by farmers, that apples are fed to horses, cattle, swine, geese, &c. to much greater profit than when converted into cider. Mr. David Reynolds of Galway, adjoining Charlton, informed me of experiments made by him, in feeding apples to his hogs. He fed a certain measure of apples daily for a given time, and they throve well. He then fed the same hogs with the same measure of potatoes, for an equal given time, and the animals showed an evident loss. He then fed apples and potatoes together, in equal quantities, and the hogs grew and improved better than on either separately. He boiled them, and found great advantage thereby, much above feeding the raw apples and potatoes. There can be no doubt of the profit in boiling all vegetables before they are fed to any cattle. It prepares them for digestion, and lets loose the nutritious parts, like as mashing prepares them for distilling; and more of the nutriment is taken up from the food on its passage through the alimentary canal.

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Imposition in the Sale of Seeds.

The deceptions in selling falsely, new and approved seeds, have retarded many useful improvements. One of the Shakers, of the family at Hancock, told me, summer before last, that he knew a farmer, beyond the Mohawk, who raised a large field of wheat, of common kind, and retailed it at great prices, through Dutchess county, &c. for the new and approved kind of wheat.

It would be more safe to purchase seeds of regular dealers, who are responsible; and animals of regular breeders of them.

In your last number, in my observations on the mode of dressing fat hogs, by the peasants of Lower Canada, it reads—that they lit *feathers*, or other combustible matter, and singe off the hair. The word I wrote was *pea-straw.*

Respectfully,
DAVID TOMLINSON.

Schenectady, January 11*th*, 1840.

On Rust in Wheat.

MESSRS. GAYLORD AND TUCKER—I have frequently heard farmers conversing on the subject of rust in wheat. In listening to these conversations, I have never heard one give, what I conceive to be, a correct opinion as respects its origin, its cause, or its properties; and have scarcely ever heard any two agree upon material facts respecting it, except this—when the straw is rusty, the wheat is sure to be shrunk. Before I attempt an explanation of my views upon this question, allow me to say I am one of that class of farmers who work for a living—one, the palm of whose hand is made callous by its familiarity with the plow, and if I should fail to convince my friend farmers so far as to induce them to follow my views and opinions respecting this subject, I hope no one will think me arrogant, in offering a few words by way of elucidation of this unexplained controversy. What we usually call rust in or on wheat is positively known among botanists as a parasitic plant of the class *Cryptogamia*; order, *Fungi*; genus, *Uredo*; and species, *Linearis.* It is of that class of plants whose parts are not visible to the naked eye; (our common puff-balls belong to the same class and order, though infinitely larger.) Men of science have long known that what is termed rust, is occasioned by the growth of these parasitic Fungi, attaching themselves to the leaves, stems and glumes of living culmiferous plants. That these Fungi have perfect seeds, and are capable of reproducing their species, has by them been satisfactorily proved and explained. These seeds are but little heavier than air, (being smaller than the dust raised from treading on the common puff-ball, which are its seeds;) consequently the air may become charged to a considerable extent with this vegetative dust, already prepared by nature, when the gentle breeze, accompanied by suitable humidity, shall give the signal, to intrude itself into all the grain in the neighborhood; hence few fields escape, of those lying in one vicinity. It usually attacks by districts, and its deleterious effects are frequently felt through a wide spread of country. In order that we may arrive at an explanation easily understood, we will presume that the striped or speckled appearance of the surface of a straw infected with rust, is caused by alternate longitudinal partitions on the bark, one of which is sound and impenetrable, the other porous or with mouths, which are closed in dry and open in wet weather, and of course cannot fail to contract or inhale moisture when the straw is damp. By these pores, which exist plentifully on the leaves and glumes of culmiferous plants, it is believed the seeds of this Fungus gain admission, (a moist atmosphere greatly accelerating their union;) they germinate and push their minute roots through the tender stalk to the cellular texture from whence they draw their support, by interrupting that sap intended by nature for the nutriment of the grain, which becoming more and more shriveled in proportion as those Fungi are more or less abundant. The substantial or floury part of the grain is only abstracted; the cortical part, or bran, remains without diminution. It seems most likely the leaf is first infected in the early part of the season, before the plant rises into straw; it is then of a bright yellow color, and as the straw approaches maturity it assumes that brown appearance usually denominated rust. These plants, or Fungi, are so diminutive in size as to need a glass of high powers to enlarge them sufficient for observation. Each pore on a straw would produce at least twenty of these Fungi, and these again would produce seed without number: how soon after these seeds take root, the plant becomes perfect and sheds its seed, can not be easily ascertained; but the probability is, it is very short; a few days in very warm weather would most likely bring it to maturity. If the weather is dry, these pores are not sufficiently open to admit the seed; and if they are, there may not be moisture enough to promote germination. It would be presumptuous to offer a remedy for an evil so little understood; conjectures, founded upon the cause and origin here assigned, may, I think, be safely hazarded; and when practical men become scientific men, or when men of science become dependent upon the earth by their own labor, for the bread they eat, these things will be better understood—the sources of evils will be sought out with more avidity, and their remedies applied with greater certainty.

FARMER C.

Manlius, January, 1840.

The communication of "Farmer C." intended for our January number, was not received till after the paper was issued.—*Eds.*

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